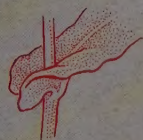


A Botanist's Vocabulary



**1300 TERMS EXPLAINED
AND ILLUSTRATED**

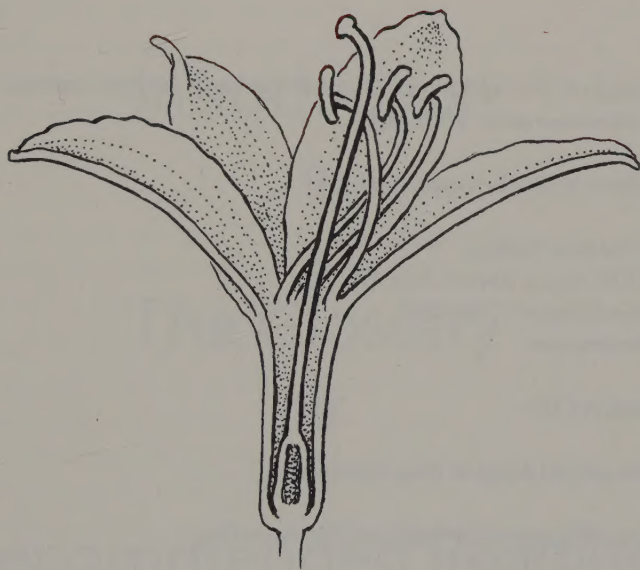
SUSAN K. PELL and BOBBI ANGELL



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**1300 TERMS EXPLAINED
AND ILLUSTRATED**

SUSAN K. PELL and BOBBI ANGELL

Timber Press • Portland, Oregon

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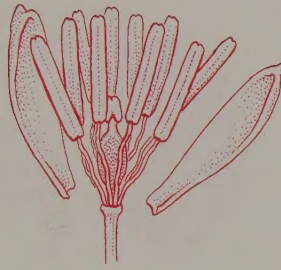
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Introduction

THERE IS AN INHERENT CURIOSITY among gardeners and naturalists that manifests itself in our conversations and actions. We are the ones making note of a plant label in a botanical garden to go back home to learn more or possibly locate one for our own garden. To us, a fallen blossom on a path begs to be pulled apart and examined up close with a hand lens. A rare plant catalog or a new book about an interesting genus are likely to captivate us for hours. Gardeners and naturalists discuss their observations, noting the first buds that emerge in the spring, describing an unusual feature on a particular plant, sharing cultivation tips for difficult habitats, or giving directions to obscure but botanically wonderful locations. We apply common names as well as Latin names to discuss the plants we encounter or cultivate along the way. We describe the colors, shapes, and textures of the plants, the growth forms and fruit characteristics, but often inadequately, perhaps not knowing the proper word to describe a particular feature, or knowing one word to describe it when our companion or manual uses a different word. We may recognize that there is no such thing as a typical flower, no basic leaf shape or growth habit, but we often cannot come up with the descriptive term for the complex and the unusual. Such terms help us to categorize and organize the world in which we are so intimately involved. Learning and applying the correct term leads to a far better appreciation for the incredible diversity of plants, enables us to communicate our knowledge, and allows us to access an even more technical and in-depth body of literature to satisfy our interests in the botanical world.

We have attempted to define terms used by botanists, naturalists, and gardeners alike to describe plants. We have simplified and clarified as much as possible to encourage the use of a common language. The included terms mostly refer to plant structures and come from the horticultural and botanical literature and practice. Many, perhaps most, terms are not easily defined or illustrated. If they were, the botanical kingdom would not be as rich and engaging as it is. With infinite variety, petals and sepals sometimes adhere to each other to attract pollinators or facilitate pollination; male and female reproductive parts may fuse to form intricate unified columns; fruits have peculiar, sometimes complicated, mechanisms of seed dispersal. There are terms that apply only to a particular group of plants, such as orchids, grasses, or irises. Some apply to whole plants or ecosystems, while others are visible only under a microscope. Please wander through the book to recognize the easily applied terms and learn a few unusual ones, but also use the book as a reference when you are stumped by a field guide or a strange-looking fruit. We hope your newfound knowledge helps you gain an even greater appreciation for the world of plants.

Bobbi Angell
Susan K. Pell

May 2015

The Glossary

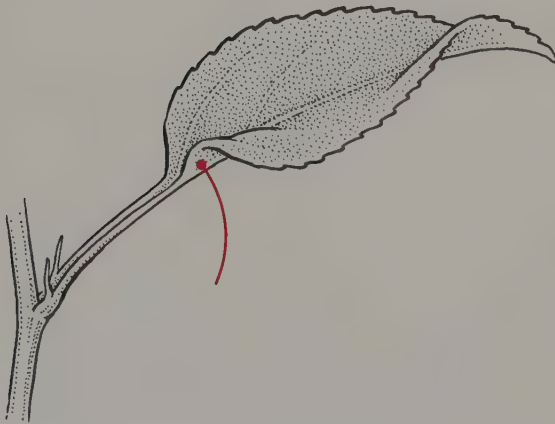
A

a-

prefix meaning without, lacking; e.g.,
apetalous

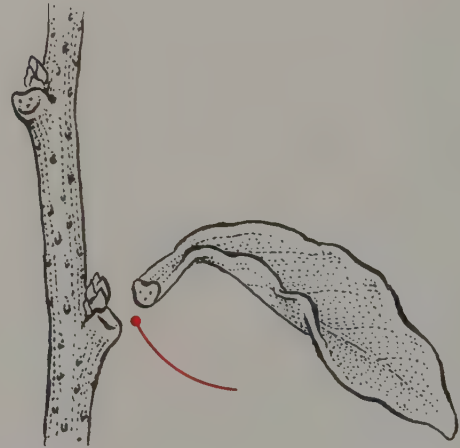
abaxial

lower surface



abscission

separation of one structure from another,
as with leaf from stem or petal from flower
receptacle; the result of cells breaking down
at the base of the falling structure



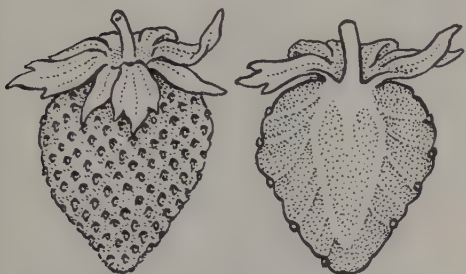
acaulescent

lacking an above-ground stem

ANTONYM **caulescent**

accessory fruit

fruit whose flesh is partially or wholly derived from non-ovary tissue (often from the receptacle); e.g., strawberries (*Fragaria*)



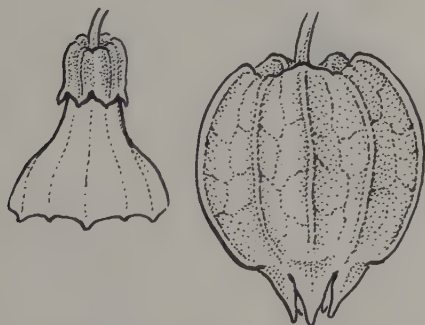
achene

small, dry, indehiscent fruit derived from a unicarpellate pistil; e.g., clematis (*Clematis*)



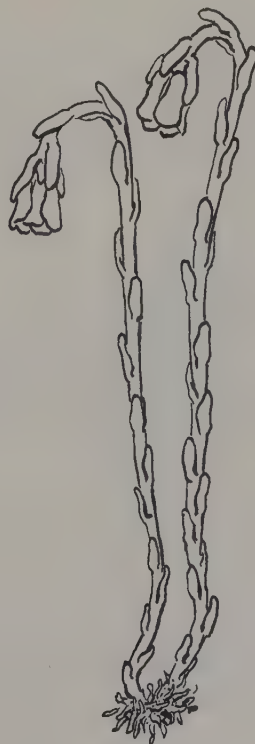
accrescent

growing larger after flower maturity, most often applied to the calyx



achlorophyllous

lacking chlorophyll; e.g., parasitic plants such as Indian pipe (*Monotropa uniflora*)



acerose

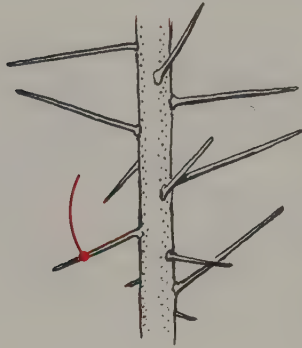
three-dimensionally needle-shaped

SYNONYM *acicular*

acicular

three-dimensionally needle-shaped

SYNONYM **acerose**

**acidophilous**

acid-loving, as with many plants that grow better in acidic soil

acorn

the nut fruit of oaks (*Quercus*), which is embedded in a scaly cup and has a single seed

**acropetal**

growing toward the tip of the shoot or root

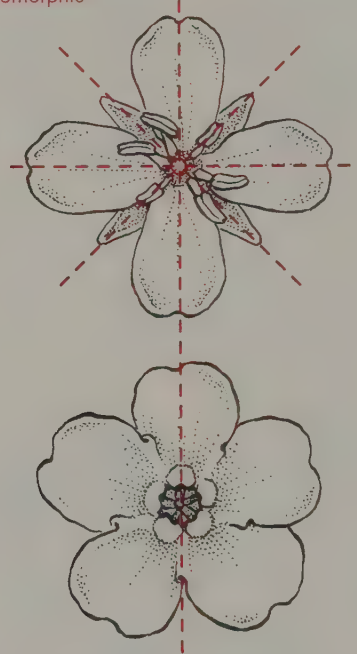
ANTONYM **basipetal**

actinomorphic

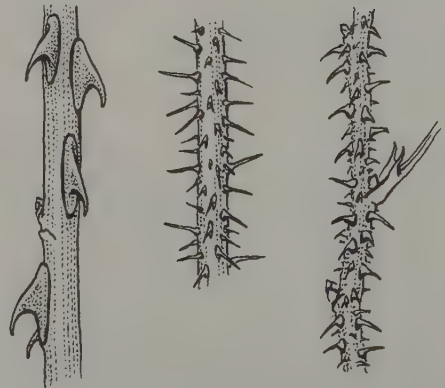
having multiple planes of symmetry such that any line drawn through the middle produces two mirror-image halves, usually applied to flowers

SYNONYM **radially symmetrical, regular**

ANTONYM **bilaterally symmetrical, irregular, zygomorphic**

**aculeate**

having prickles



acuminate

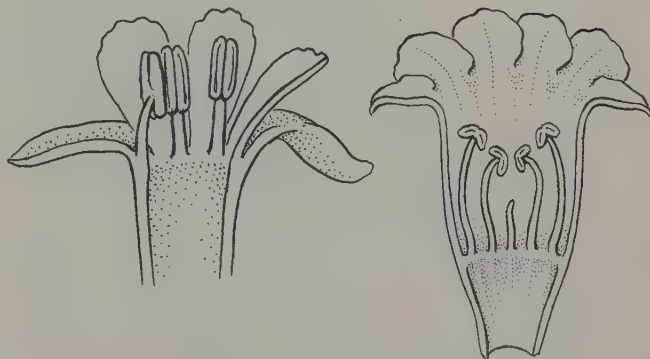
tapering to a point with concave margins

**adherent**

unlike structures stuck together but not fused

adnate

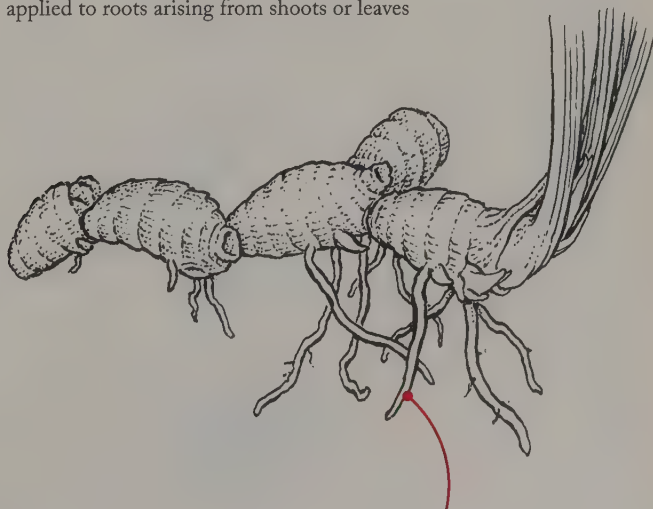
unlike structures fused together, as stamens to petals

**acute**

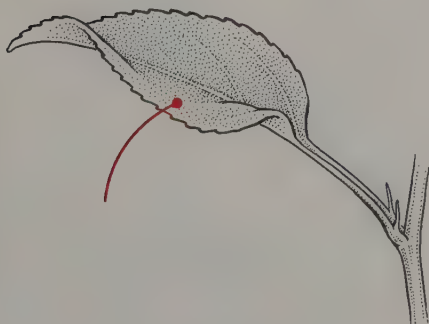
pointed with the sides straight or nearly so and forming a $\leq 90^\circ$ angle, applied to both the base and apex of leaves

**adventitious**

structures arising in areas other than those in which they normally occur, most often applied to roots arising from shoots or leaves

**adaxial**

upper surface



adventive

relatively recently escaped and spreading non-native species; less established than naturalized species

aerial

occurring or produced above the soil or water; e.g., aerial roots

aerial bulb

bud usually produced in leaf axils that can give rise to a new plant; e.g., plantlets on cycad trunks

SYNONYM bulbel, bulbil

aerial root

root produced above ground, such as those produced along the climbing stem of poison ivy (*Toxicodendron radicans*)

**aestivation, estivation**

arrangement of perianth parts in bud; see also vernalion

afterripening

period of rest (also called dormancy) that some seeds must go through before being able to germinate

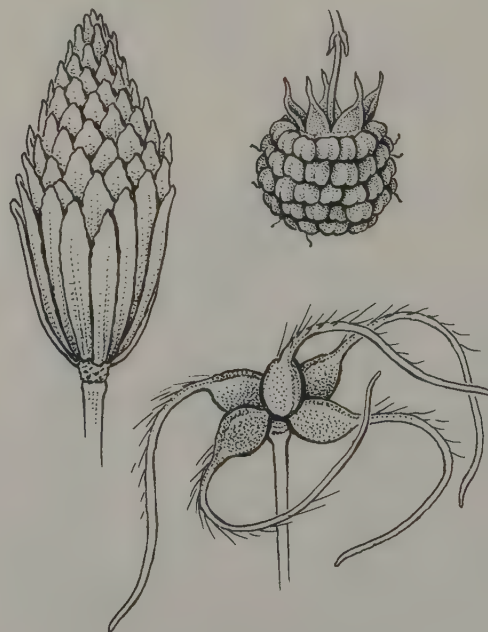
agamospermy

production of viable seeds without fertilization, without sexual reproduction

aggregate fruit

formed from the fusion of multiple, separate unicarpellate pistils in a single flower, may consist of tiny versions of one of many different fruit types including samaras, drupes, achenes, follicles, etc.; e.g., raspberries and blackberries (*Rubus*)

SYNONYM etaerio

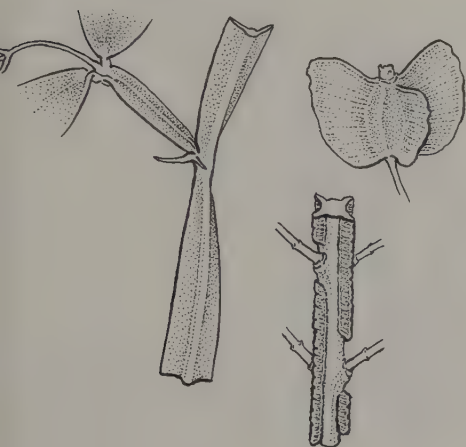


air plant

a plant that grows attached to another plant but which does not parasitize that plant, often specifically refers to epiphytic bromeliads in the genus *Tillandsia*

alate

winged with expanded and flattened tissue; e.g., stems and fruits of winged elm (*Ulmus alata*) and stems of winged euonymus (*Euonymus alatus*)



allelopathy

phenomenon in which a plant secretes compounds that interfere with the growth, reproduction, or continued survival of other plants around it; e.g., black walnut (*Juglans nigra*)

allopatric

occurring in different areas, as with two species whose distributions do not overlap

ANTONYM *sympatric*

alpine plants

plants that grow in high-elevation areas above where trees grow (i.e., above the tree line); these are the plants traditionally and most commonly grown in rock gardens

alternate

1. occurring one per node, as with leaves interspersed on a stem; 2. occurring one following the other in a series, as with petals alternating with sepals in a flower when viewed from above or below



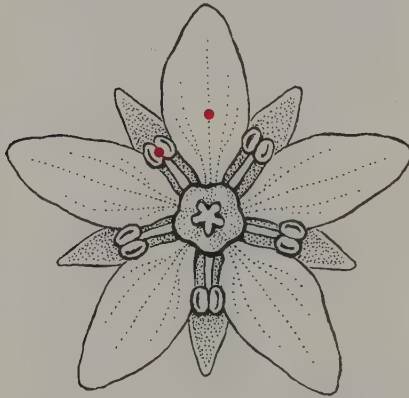
alternate bearing

producing abundant fruit every other year, and minimal to no fruit in the alternating year

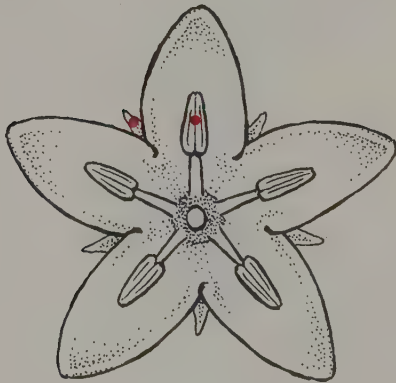
SYNONYM *biennial bearing*

alternipetalous

said of floral parts whose positions in the flower alternate with those of the petals

**alternisepalous**

said of floral parts whose positions in the flower alternate with those of the sepals

**alveolate**

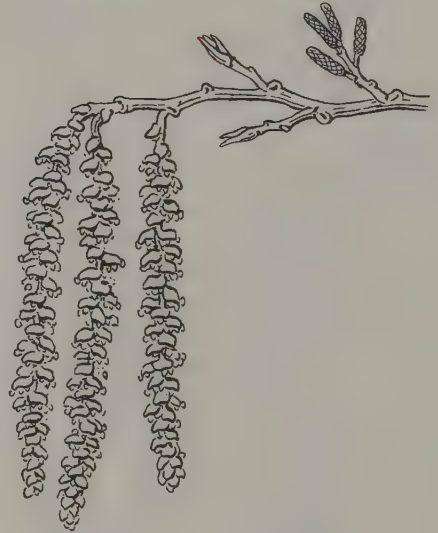
honeycomb-like with neatly arranged depressions and ridges

SYNONYM *faveolate*, *favose*

ament

usually pendulous spike-like inflorescence of unisexual, sessile to subsessile, apetalous flowers

SYNONYM *catkin*

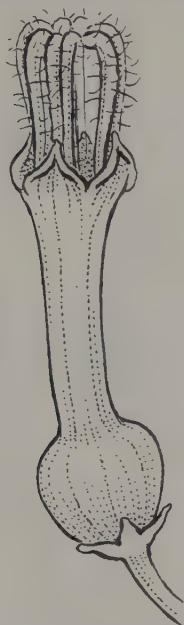
**amplexicaul**

clasping the stem without fully encircling it, as with a leaf, stipule, or bract



ampulla

bottle-shaped or spherical swelling



anchor root

adventitious root emerging from the lower part of a trunk and acting as structural support for a tree

SYNONYM brace root, prop root, stilt root

ancipital

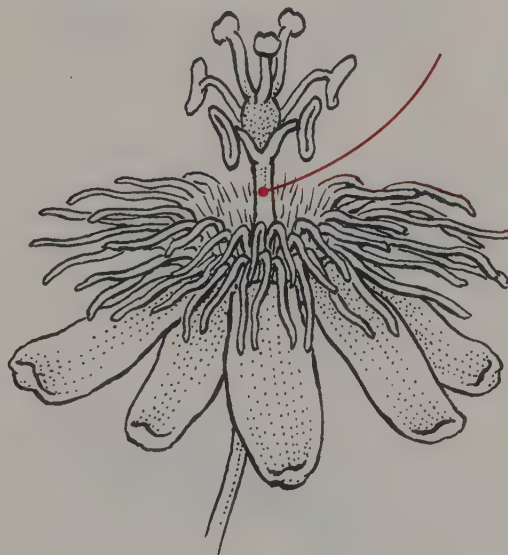
flattened, with two edges

androecium

male reproductive portion of the flower, consists of stamens

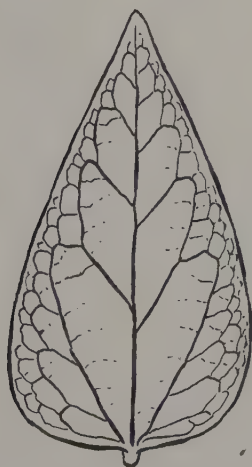
androgynophore

stalk elevating the androecium and gynoecium above the perianth, as in passionflowers (*Passiflora*)



anastomosing

reconnection of branches resulting in the formation of a network; e.g., reticulate venation



androphore

stalk bearing the stamens

**anemophilous**

pollinated by wind

angiosperm

plant bearing flowers that have ovules inside of ovaries that develop into seeds inside of fruits

anisomerous

having an unequal number of parts in the floral whorls

anisophyllous

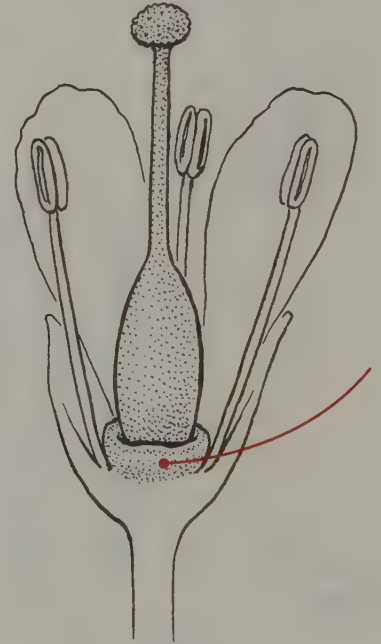
opposite leaves of unequal size and/or shape

**annual**

plant whose entire life cycle occurs in one year: it grows from seed, flowers, produces seeds, and dies

annular

shaped like a ring, as in a nectary disk

**annulus**

line of cells along the sporangium wall that plays an important role in sporangium dehiscence and spore dispersal in ferns

antepetalous, antipetalous

directly in front of the petals, as with stamens occurring opposite the petals, not alternating with them

antesepalous, antisepalous

directly in front of the sepals, as with stamens occurring opposite the sepals, not alternating with them



antheridium

(plural antheridia) male, sperm-bearing reproductive structure of ferns, lycophytes, and non-vascular plants

anther sac

one of typically two chambers inside of each anther, usually bears pollen

SYNONYM *theca*

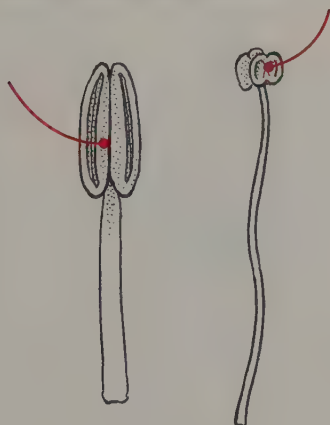


anthesis

peak flower maturity, flower is open and sexually fertile

anther

pollen-bearing part of stamen



anthocarp

seed-bearing structure resembling and often mistaken for a fruit but for which the majority of the tissue is non-ovary (may be from such structures as a hypanthium or receptacle); e.g., rose hips (*Rosa*)

SYNONYM *false fruit*, *pseudocarp*

anthocyanin

blue, red, and purple pigments in plants, type of flavonoid, water-soluble

anthophore

stalk between the point of attachment of the calyx and the rest of the flower (corolla, androecium, gynoecium)

anthoxanthin

white and yellow pigments in plants, type of flavonoid, water-soluble

ant-plant

a plant that has a mutualistic relationship with ants

SYNONYM *myrmecophyte*

antrorse

pointing up or toward the apex

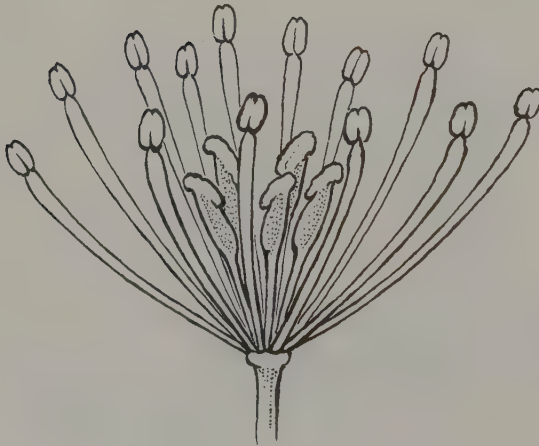
ANTONYM *retorse*

aperture

opening, specifically refers to those in the exine of pollen grains

apetalous

lacking petals

**apex**

(plural apices) tip; opposite the base and furthest from point of attachment

ANTONYM *base*

**aphyllous**

lacking leaves

apical

at or of the apex, as in apical placentation

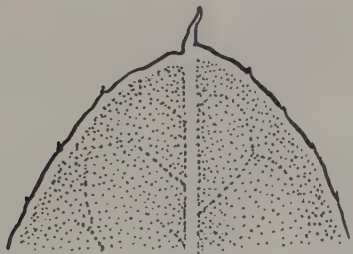


apical dominance

terminal bud's control over vertical growth of the main stem and elongating growth of branches by growing more vigorously than, and limiting, the growth of lateral buds; this phenomenon gives rise to the typical form of trees

apiculate

coming to an abrupt, short point



apiculum, apiculus

an abrupt, short point

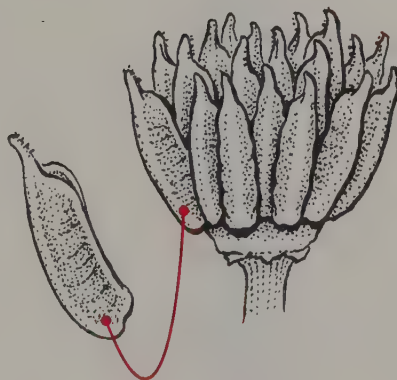
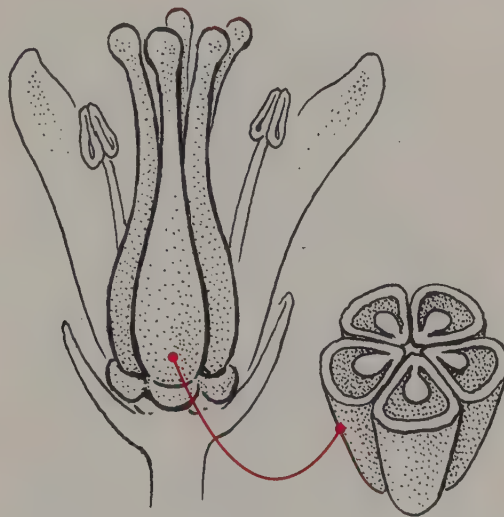
apo-

prefix meaning apart, detached, or separate

apocarpous

gynoecium consisting of two to many separate, unfused carpels (simple pistils)

ANTONYM **syncarpous**



apomictic

reproducing asexually from the flower or fruit, often used synonymously with agamospermy

apomixis

asexual reproduction involving the flower or fruit, often used synonymously with agamospermy

appendage

structure arising from another, larger, structure

appressed

close against another structure but not fused to it



aquatic

plant growing in water seasonally or continuously

arborescent

tree-like in form but not a true tree; e.g., banana (*Musa*), which is an herbaceous plant with a trunk made up of leaf bases

archegonium

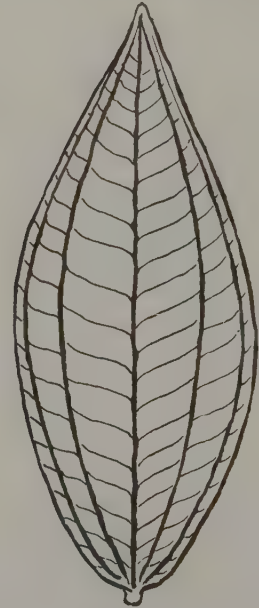
(plural archegonia) female, egg-bearing reproductive structure of ferns, lycophytes, and non-vascular plants

arctic

growing north of the arctic circle

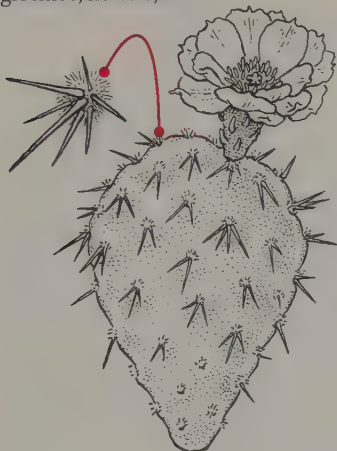
arcuate

arching or curved; e.g., arcuate venation



areola

small area distinct from nearby areas; in leaves, the space created by the joining of veins; in the cactus family (Cactaceae), the area on the stem that produces spines, glochids, flowers, etc.



aristate

terminating in a long bristle

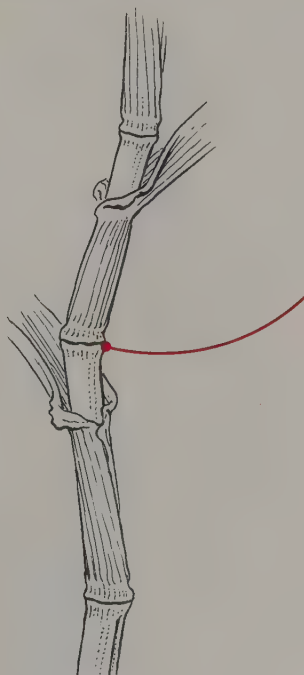


armature

prickles, spines, thorns, etc.

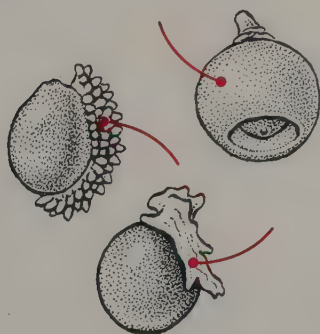
articulation

notch or joint, often the location at which two sides or organs separate



aril, arillus

fleshy outgrowth of the funicle or hilum, subtending to encompassing a seed; e.g., lychee (*Litchi chinensis*) and yews (*Taxus*)



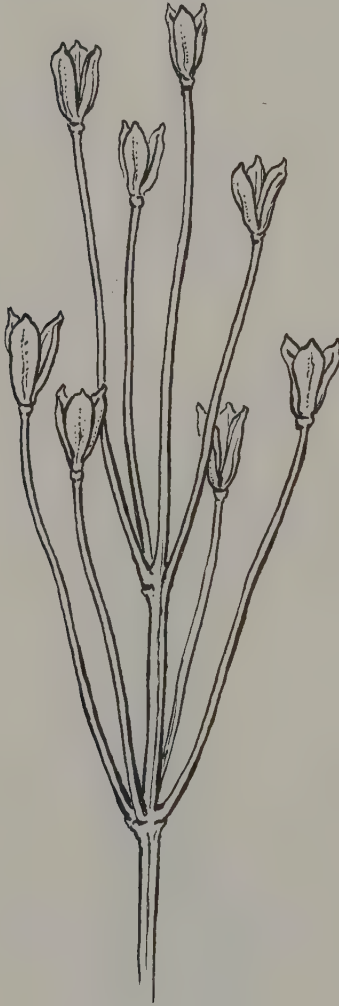
arista

a bristle, usually terminating a leaf or other structure

SYNONYM awn

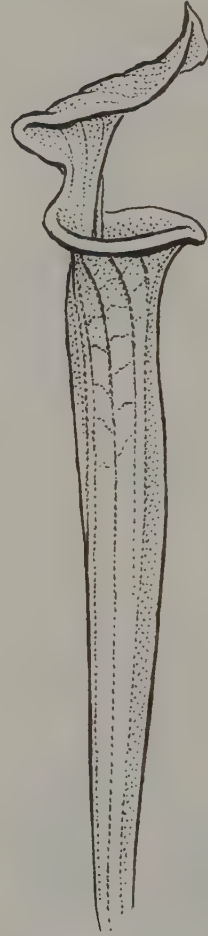
ascending

pointing or growing upward in an arching or curving fashion



ascidiate

pitcher-shaped, as in the water-holding leaves of pitcherplants (*Sarracenia*)



asepalous

lacking sepals

asexual

without sex, as with individuals or reproduction

asymmetrical

having two halves or sides that are unequal in size and/or shape, usually applied to leaf bases

SYNONYM *oblique*

**auricle**

earlobe-shaped appendage, as in some leaf bases

auriculate

earlobe-shaped; having auricles

SYNONYM *eared*

**autogamy**

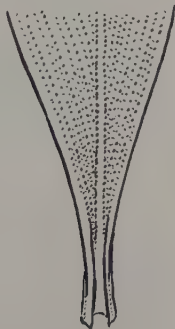
self-pollination, self-compatibility

atropurpurea

dark purple

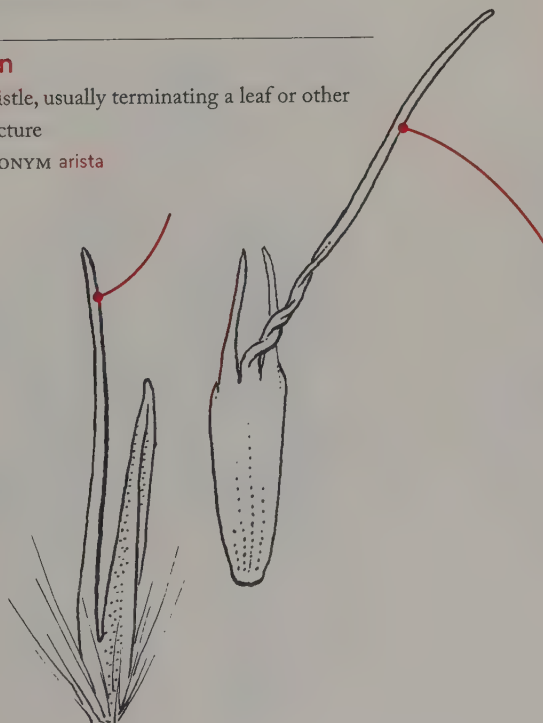
attenuate

gradually narrowing to a point

**awn**

a bristle, usually terminating a leaf or other structure

SYNONYM *arista*

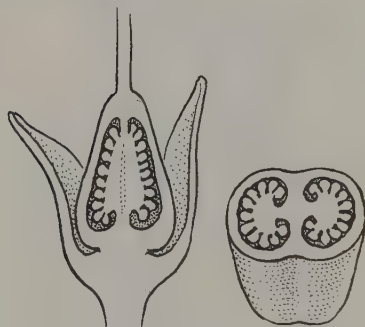


axil

upper angle of the junction between a stem and another stem, leaf, or reproductive structure

axile

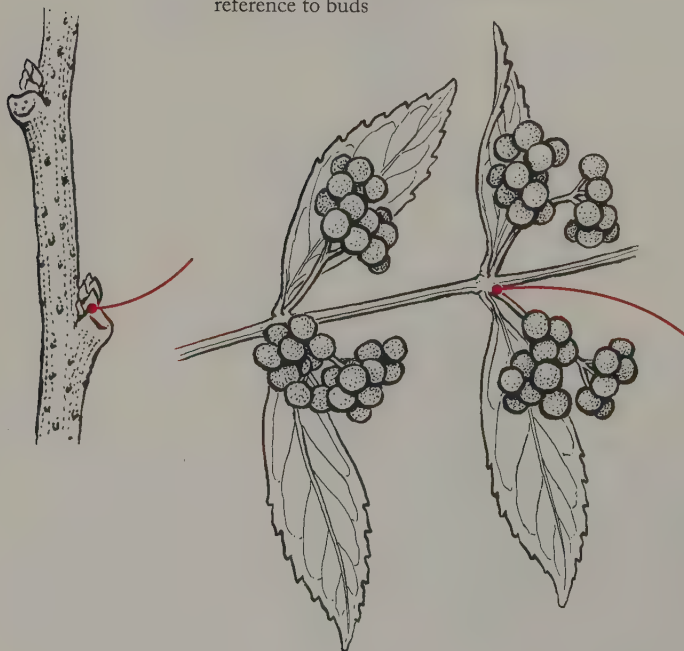
1. of the axis; 2. attached to the axis, as in axile placentation

**axis**

central vertical portion of a structure, to which parts of that structure are often attached, as with an inflorescence and its branches or a flower and its whorls

axillary

at the junction between a stem and another stem or other organ, most often used in reference to buds



B

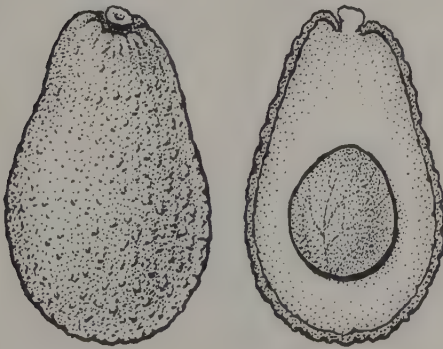
bacca

fleshy, indehiscent fruit with one to many seeds embedded in a pulpy mesocarp, endocarp not easily discernible; e.g., blueberries (*Vaccinium*)

SYNONYM **berry**

baccate

fruit that looks like a berry but may or may not be a true berry; often applied to tropical and unusual berries; e.g., avocado (*Persea americana*)



back bulb

old orchid pseudobulb that no longer has leaves, often used for propagation

balausta

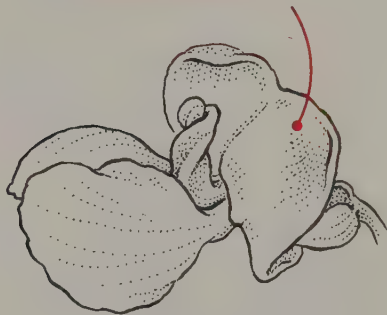
fleshy, indehiscent, many-seeded fruit with leathery exocarp, derived from a multicarpellate pistil; e.g., pomegranate (*Punica granatum*)



banner

flower petal typical of papilionoid legumes in the bean family (Fabaceae), usually the upper and largest petal; e.g., sweet peas (*Lathyrus*), lupines (*Lupinus*)

SYNONYM standard, vexillum



bark

the outer layer of woody stems, consists of living phloem, cork cambium, and cork (all tissues to the outside of the vascular cambium)



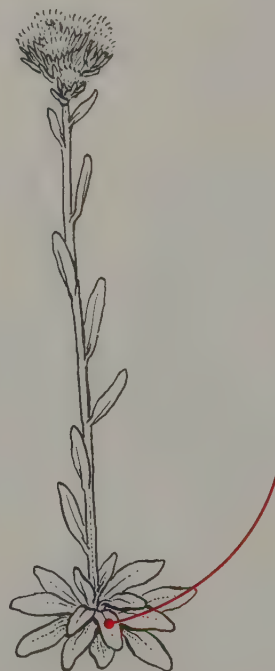
barbed

with stiff, sharp, retrorse (or less commonly introrse) points



basal

at, attached to, or of the base, as with leaves attached to the base of a plant



bare root

roots that would normally be surrounded by soil are exposed, plants are often shipped in this state to prevent the spread of soil-borne insects and pathogens

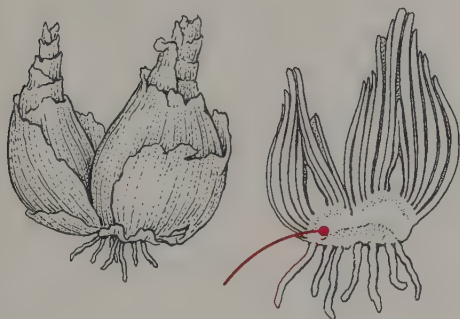
basal placentation

ovule(s) attached at the base of the ovary in a simple pistil



basal plate

small stem portion of a bulb from which the roots grow downward and the leaves, inflorescence, and bracts grow upward



basal shoot

shoot growing from the base or roots of a tree or shrub, usually applied to those emerging from below ground

base

portion opposite the apex; closest to or at the point of attachment

ANTONYM *apex*



basifixed

attached at the base, as with filaments attached to the base of anthers; see also *dorsifixed*, *medifixed*, *versatile*



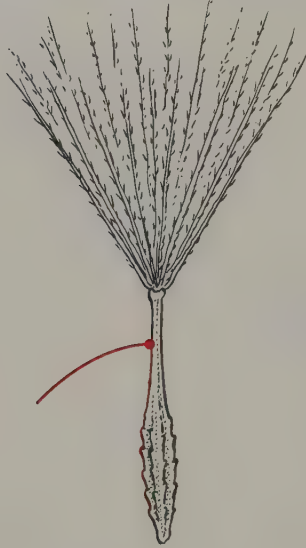
basipetal

growing toward the base of the shoot or root

ANTONYM *acropetal*

beak

an elongate tip or projection

**bean**

the seed of a legume; also sometimes used to refer to the whole fruit, in which case it is being used as a synonym of **legume**

**beard**

clump of hairs or fringe of tissue that appears fuzzy, as on the central portion of the three outer tepals of some irises (*Iris*)

**bearing**

having or producing; most commonly applied to plants that produce edible fruits

berry

fleshy, indehiscent fruit with one to many seeds embedded in a pulpy mesocarp, endocarp not easily discernible; often applied incorrectly to any small fleshy fruit; e.g., blueberry (*Vaccinium*)

SYNONYM **bacca**

**bi-**

prefix meaning two

bicarpellate

having two carpels

bicolored

having two colors, usually applied to flowers

biconvex

shaped like a lentil, i.e., round and convex on both sides

SYNONYM *lenticular*

bicrenate

two-tiered scalloped margin where larger scallops have smaller scallops on them

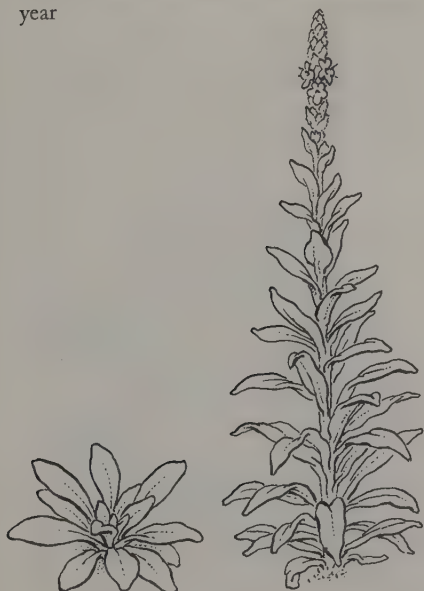
SYNONYM *doubly crenate*

bidentate

having two teeth

biennial

plant whose entire life cycle occurs in two years: it grows from seed and produces leaves the first year, often as a basal rosette; it flowers, produces seeds, and dies the second year

**biennial bearing**

producing abundant fruit every other year, and minimal to no fruit in the alternating year

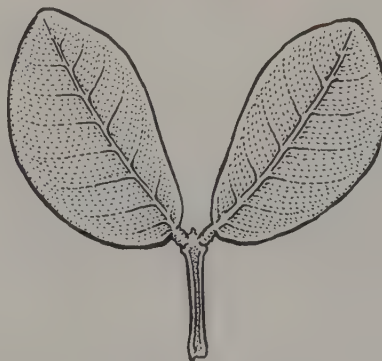
SYNONYM *alternate bearing*

bifid

split in two, as in some leaf blades

**bifoliate, bifoliolate**

having two leaves or leaflets

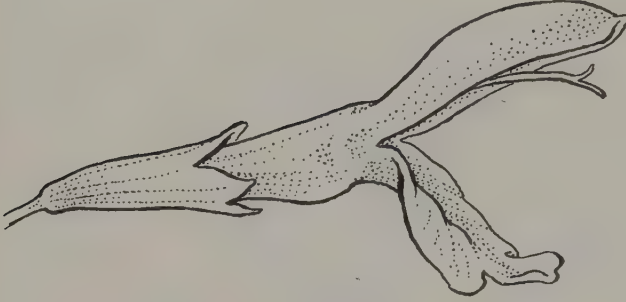
**bifurcate**

split into two branches



bilabiate

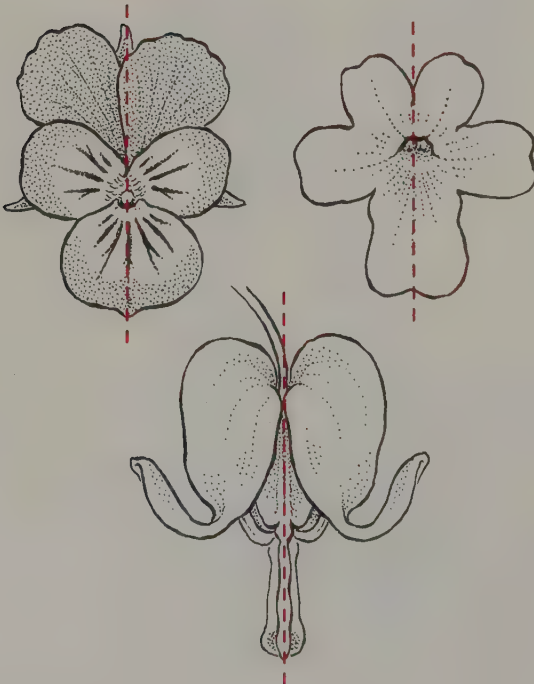
having two lips, as with some flowers; e.g., mint family (Lamiaceae)

**bilaterally symmetrical**

having a single plane of symmetry such that only one line drawn through the middle produces two mirror-image halves

SYNONYM *irregular, zygomorphic*

ANTONYM *actinomorphic, radially symmetrical, regular*

**bilobed**

having two lobes

**binomial**

the two-part scientific name for a species, consisting of a genus (e.g., *Acer*) and a specific epithet (e.g., *rubrum*)

bipinnate

leaf that is pinnately dissected twice, leaflets arising along rachillas that themselves arise along a rachis



bisected

divided into two parts

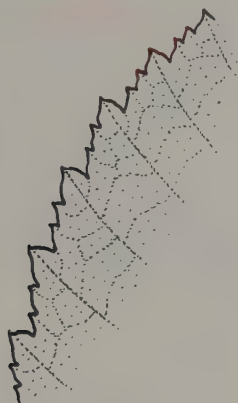
biseriate

in two series

biserrate

margin teeth having teeth of their own, all pointing up toward the apex

SYNONYM **doubly serrate**

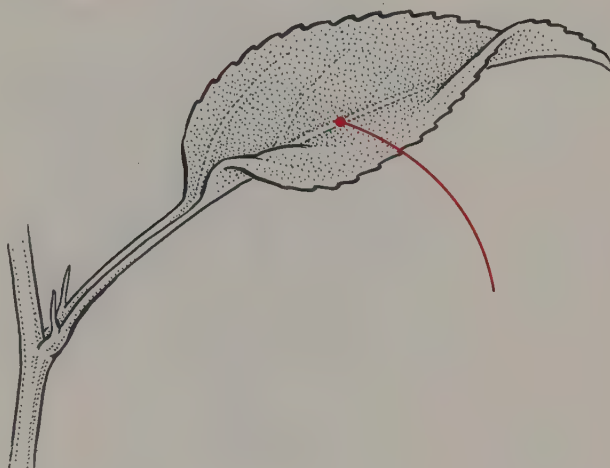
**bladder**

sac-like structure, often filled with air or liquid

blade

the usually broad and flattened part of a leaf or petal

SYNONYM **lamina**

**bisexual**

having both female (egg) and male (sperm) reproductive cells in the same individual or reproductive structure

bitoned

having two tones of the same color, usually applied to flowers

black knot

large, dark, warty masses on the branches of *Prunus* spp. (especially cherry and plum) caused by the fungus *Dibotryon morbosum*

blind shoot

stem of a flowering plant that does not produce flowers, most commonly applied to roses (*Rosa*)

bloom

1. a flower or inflorescence; 2. gray-white waxy or powdery surface coating; 3. rapid localized growth of algae

blossom

a flower or inflorescence

bole

main stem or axis of a tree, between the roots and where branches begin to form the crown

SYNONYM **trunk**



bolt

grow rapidly, usually happens with seedlings or saplings and often occurs after a resource becomes newly available

bonsai

1. a woody plant, most commonly a tree, that is substantially reduced in size, usually accomplished through intentional manipulation under cultivation, but may also occur naturally under challenging growing conditions; 2. the Japanese art of growing dwarf woody plants



boot

remnant leaf base that remains attached to the trunk of some palm trees after the leaf dies

bough

a branch of a tree, usually applied to the larger branches

bourgeon, burgeon

a sprout or bud

brace root

adventitious root emerging from the lower part of a trunk and acting as structural support for a tree

SYNONYM anchor root, prop root, stilt root

brachyblast

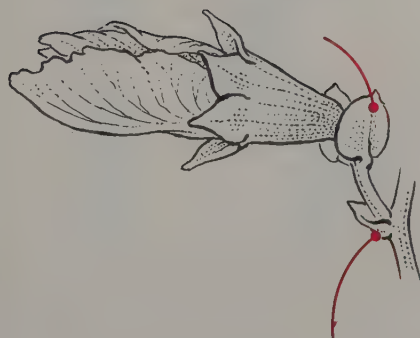
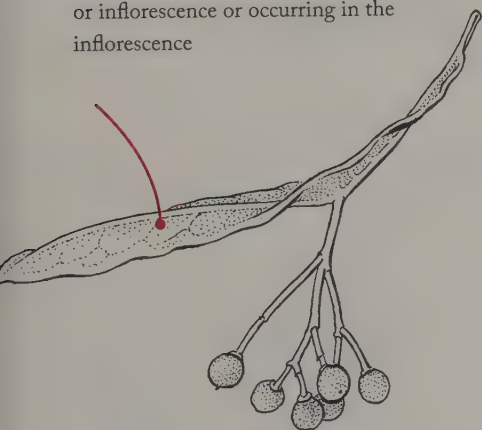
stem with highly compressed internodes that usually bears the leaves and reproductive structure; e.g., ginkgos (*Ginkgo*), apples (*Malus*)

SYNONYM short shoot, spur

ANTONYM long shoot

bract

leaf-like structure subtending a flower or inflorescence or occurring in the inflorescence



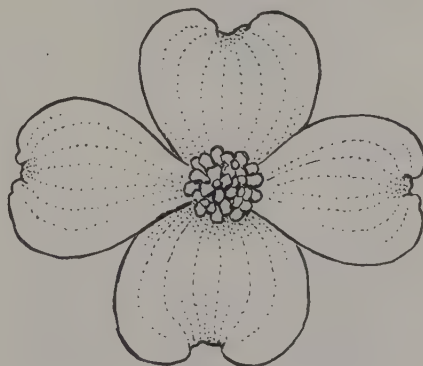
bracteate

having bracts



bracteose

having numerous or showy bracts; e.g., the inflorescence of dogwood (*Cornus florida*)



bramble

a prickly plant, usually specifically applied to raspberries and blackberries (*Rubus*), less commonly to their other relatives in the rose family (Rosaceae)

branch

1. stem arising from another stem; 2. the divarication of one structure into smaller versions or segments of that structure; 3. the action of producing a divarication, as in branches of trees or veins in leaves



branchlet

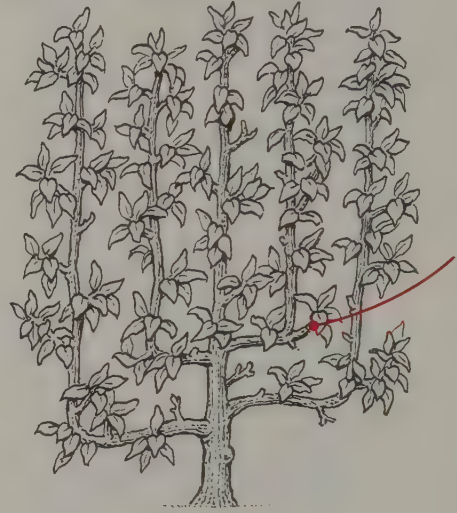
small branch

breaking

1. opening, as with flower or leaf buds in the spring; 2. ending, as with dormancy of a germinating seed

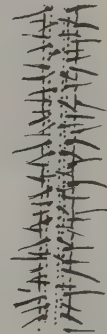
breastwood

new branches growing on an espaliered tree that usually must be pruned to keep the shape of the espalier



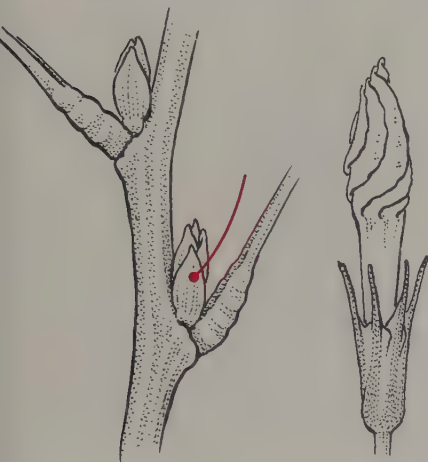
bristle

narrow, stiff hair



bud

immature flower, leaf, or stem still with its protective covering (bud scales, bracts, sepals, etc.)



bud scales

small leaf-like structures on the outside of the bud, protecting the developing flower, leaf, or stem



bulb

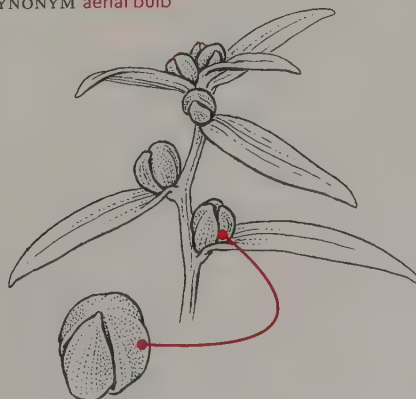
underground storage structure composed of buds attached to a small basal plate of stem tissue surrounded by fleshy leaf bases and bracts, majority of structure is leaf tissue; e.g., onions (*Allium*)



bulbil, bulbel

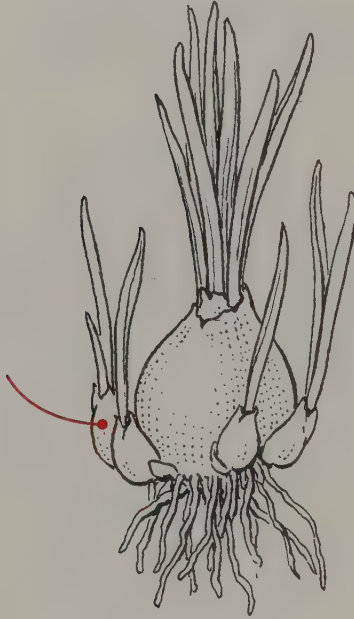
bud usually produced in leaf axils that can give rise to a new plant; e.g., plantlets on cycad trunks

SYNONYM **aerial bulb**



bulblet

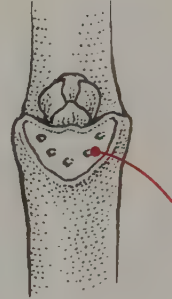
small bulb, often growing from the base of a larger bulb

**bullate**

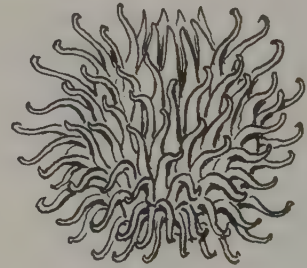
having a surface covered in smooth, rounded bumps

bundle scar

mark within the leaf scar on the stem from where leaf's vascular tissue was attached to the stem

**bur, burr**

seed dispersal unit (may be seed, fruit, carpel, etc.) that is armed for sticking to fur for dispersal

**burgeon, bourgeon**

to send forth new growth rapidly, as with a shoot bud

burl

woody knot in the trunk, branches, or roots of a tree, caused by something that has damaged the tree (infection, disease, or injury), prized for use in woodworking

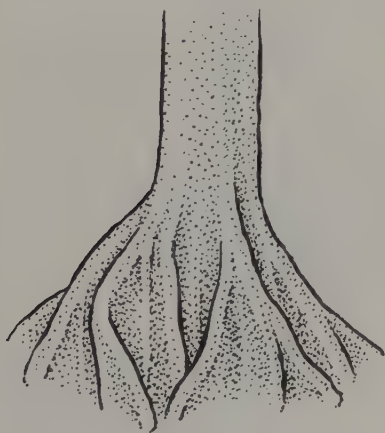
bush

woody plant with multiple main stems, usually shorter than a tree

SYNONYM **shrub**

buttress

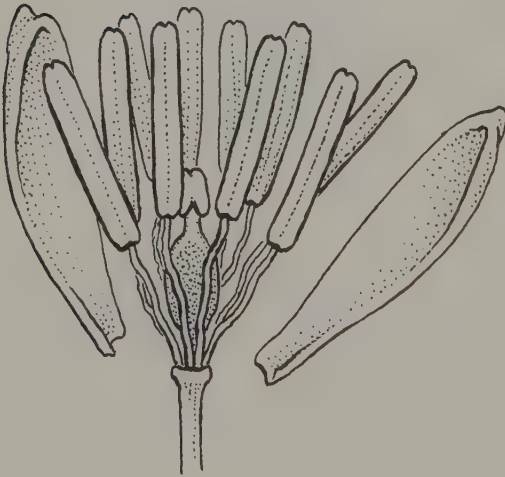
widened base of tree trunk, most commonly associated with trees in wet areas; e.g., bald cypress (*Taxodium distichum*)



C

caducous

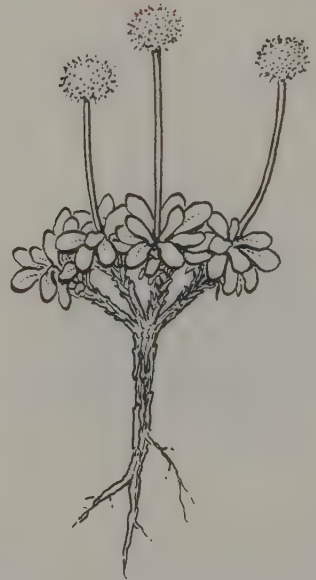
quickly deciduous, often applied to flower petals



caespitose, cespitose

growing in dense clusters

SYNONYM **clumped**



calcar

pointed, hollow appendage on a flower, often containing nectar and a projection from or a modification of the perianth

SYNONYM **spur**

calcarate

having a spur

SYNONYM *spurred*

calcareous

1. soils that are high in lime (calcium carbonate); 2. vegetation that grows on lime-rich soil

calceolate

shaped like a slipper, as in the pouch-like labellum of slipper orchids (Orchidaceae subfamily Cypripedioideae)

**callicole**

plant that grows best in calcareous soil

SYNONYM *calciphile, calciphyte*

calcifuge

plant that does not grow well (or in some cases at all) in calcareous soil

calciphile, calciphyte

plant that grows best in calcareous soil

SYNONYM *callicole*

caliper

diameter of a tree trunk at six inches above the ground, measured at 12 inches above ground when trunk diameter is greater than four inches; see also *DBH*

calloused

having a callus

callus

(plural calluses, calli) 1. hard, thickened tissue; 2. short, thick stalk at the base of the lemma in grasses (Poaceae); 3. undifferentiated tissue (parenchyma) often produced in the early stages of plant tissue culture

calyculate

having an epicalyx or similar whorl of bracts subtending the calyx or involucre



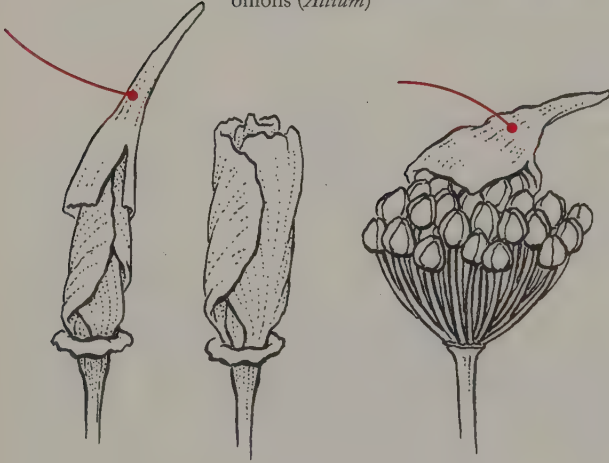
calyculus

bracts subtending the flower and appearing as a whorl beyond the calyx

SYNONYM **epicalyx**

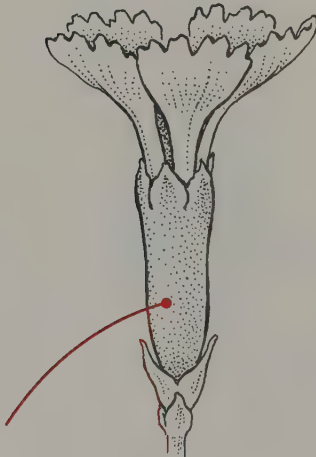
calyptra

hood or cap, as with the fused calyx of California poppies (*Eschscholzia californica*) or onions (*Allium*)



calyx

collective term for flower sepals



cambium

lateral meristem that produces cork or vascular tissue (xylem toward the middle and phloem toward the outside) and is thus responsible for the thickening growth of woody stems and roots

campanulate

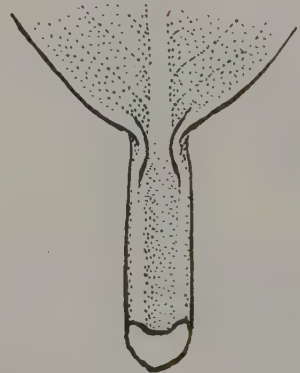
shaped like a bell



canaliculate

having one or more longitudinal grooves

SYNONYM **channeled**



candle

new shoot on a conifer as it's coming out of bud

cane

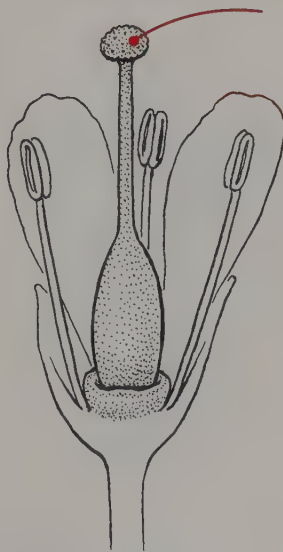
1. stem of a shrub, usually applied to fruit-bearing plants, e.g., raspberries and blackberries (*Rubus*) and roses (*Rosa*); 2. grass stem, usually applied to species that produce large, stiff, or woody stems; 3. long, thin pseudobulbous stem of some orchids, e.g., *Dendrobium*

**canopy**

1. upper branching portion of a tree; 2. upper layer of a forest consisting mostly of treetops

**capitate**

with a compact head, like a pushpin; commonly used to describe stigmas



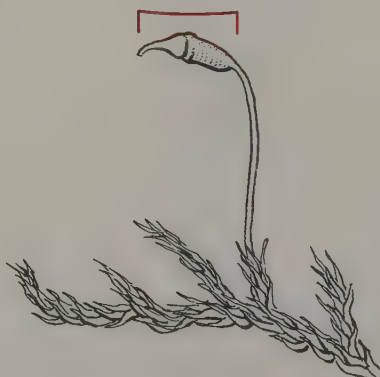
capitulum

(plural capitula) inflorescence of sessile flowers borne on a flattened and expanded portion of the inflorescence axis; the inflorescence of the sunflower family (Asteraceae)

SYNONYM **head**

**capsule**

1. dry, dehiscent multilocular fruit splitting open along one to many lines or locations of dehiscence—may be circumscissile, loculicidal, poricidal, septicidal; 2. the spore-containing structure (sporangium) of mosses

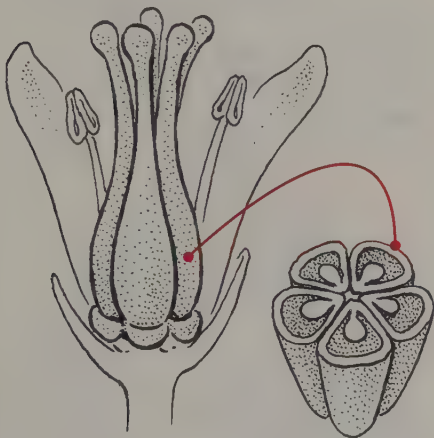


carotene

yellow, orange, and red pigments in plants, important in photosynthesis, oil-soluble

carpel

1. primary unit of a pistil, consists of an ovary, style, and stigma and contains ovules. May be solitary in the flower (one simple pistil), or in multiples either free (more than one simple pistil) or fused (compound pistil);
2. megasporophyll of angiosperms



carpellate

having carpels

carpet-forming

densely growing prostrate or short-statured plants covering the ground

carpophore

central stalk-like structure from an extended receptacle to which carpels are attached, as with some species in the carrot (*Apiaceae*), geranium (*Geraniaceae*), and buttercup (*Ranunculaceae*) families

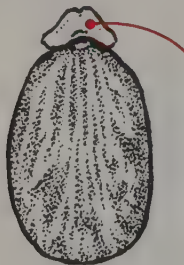


cartilaginous

cartilage-like; tough but flexible tissue

caruncle

outgrowth of the ovule's outer integument, visible as a raised area or appendage on the seed coat near the micropyle and hilum



caruncular

pertaining to caruncles

carunculate

having a caruncle

caryopsis

dry, indehiscent fruit in which the single seed is fused to the pericarp; fruit of the grass family (Poaceae), derived from a unicarpellate pistil

SYNONYM grain

**castaneous**

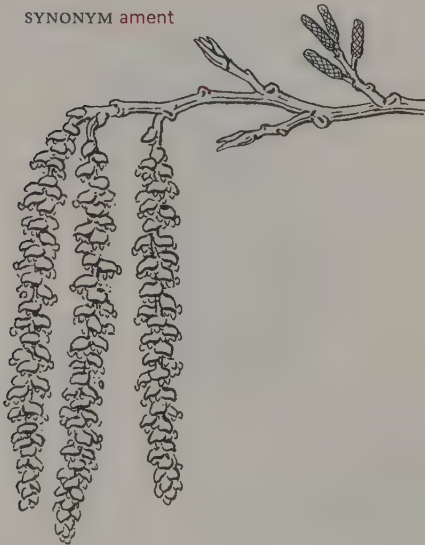
reddish brown, rust- or chestnut-colored

SYNONYM ferruginous, rufous, rufus

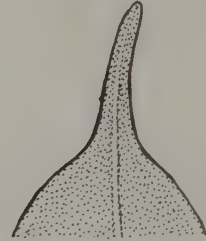
catkin

usually pendulous spike-like inflorescence of unisexual, sessile to subsessile, apetalous flowers

SYNONYM ament

**caudate**

tapering to a long point, with concave margins at the base of the tip

**caudex**

(plural caudices, caudexes) 1. persistent above- or at-ground portion of herbaceous perennials; 2. main plant axis, the roots and stem; 3. water-storing swollen plant base



caudiciform

having a water-storing swollen plant base (caudex) from which the stems arise, as with some arid-adapted species in the spurge (Euphorbiaceae), gourd (Cucurbitaceae), and bean (Fabaceae) families



cauliflorous

having flowers and fruits borne along the trunk and/or branches



caulescent

clearly having an above-ground stem

ANTONYM *acaulescent*



cauline

emerging from or pertaining to the stem, applied most often to leaves



cell

1. cavity or chamber, as with anther sacs and locules; 2. smallest unit of organization in organisms

ceraceous

waxy physically or visually

cernuous

hanging or bent downward, applied most often to flowers

SYNONYM **nodding**

**cespitose, caespitose**

growing in dense clusters

SYNONYM **clumped**

chaff

dry, fine bracts or scales, like those subtending the fruits of the sunflower (Asteraceae) and grass (Poaceae) families

chaffy

having chaff

chamaephyte

plant that bears resting or overwintering buds on or near the ground

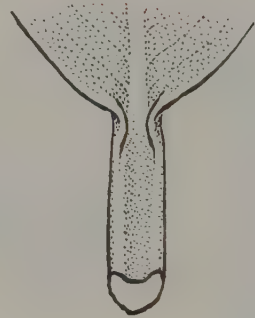
chambered

having multiple cavities, or hollow sections, separated by walls; e.g., pith of black walnut (*Juglans nigra*)

channeled

having one or more longitudinal grooves

SYNONYM **canaliculate**

**chartaceous**

having a papery texture

chasmogamous

flowers that are fertilized after opening (at anthesis), generally cross-pollinated

ANTONYM **cleistogamous**

chimera, chimaera

plant that contains two different types/strains of DNA, as results from grafting, genetic engineering, or mutation

chiropterophilous

pollinated by bats

chiropterophily

bat pollination

chlorophyll

green pigment in plants, photosynthetic, fat-soluble

chlorophyllous

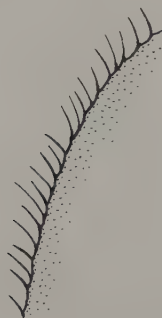
having chlorophyll

chlorosis

yellowing of tissue due to insufficient chlorophyll production, usually caused by nutrient deficiency

ciliate

with a fringe of hairs extending from the margin



cincinnus

(plural cincinni) ambiguous term that is variously used as a synonym of helicoid cyme or scorpioid cyme

cincturing

removing only a very narrow and thin layer of bark tissue to increase fruit set and size in fruit-bearing plants; e.g., peach (*Prunus persica*) and grapes (*Vitis*)

SYNONYM girdling

circinate

coiled like watch springs, as with the arrangement of fern fronds in bud



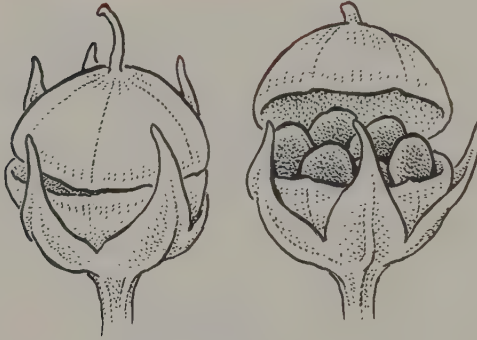
circular

round

SYNONYM orbicular

circumscissile

dehiscing transversely so the top comes off, as with some anthers and capsules; see also **loculicidal**, **poricidal**, **septicidal**

**cirrose, cirrhose**

having tendrils or terminating in a tendril

**cladophyll, cladode**

stem that looks and functions like a leaf
SYNONYM **phylloclade**

**cladotopic**

deciduous by branches and leaves shedding together; e.g., bald cypress (*Taxodium distichum*)

clambering

climbing, but very weakly or not at all attached to supporting structures

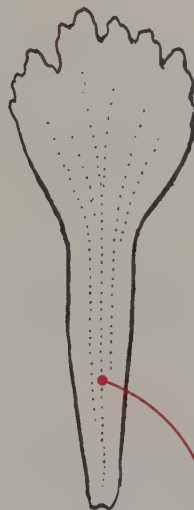
clasping

surrounding the stem partially to nearly completely, as with some leaf blade bases in the grass family (Poaceae)



claw

narrowed base of an otherwise broad structure; e.g., some petals and sepals; see also *unguiculate*



class

taxonomic rank above order and below division

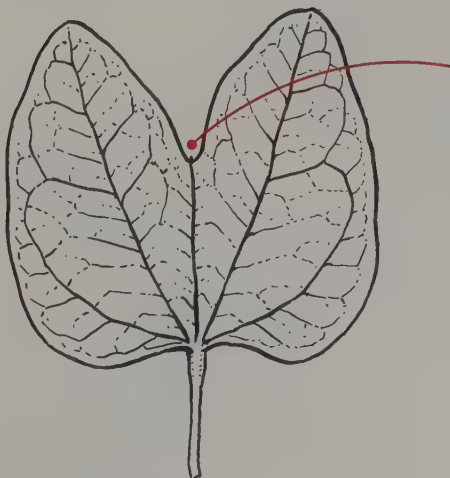
clavate, claviform

shaped like a club



cleft

notch or sinus extending almost to the middle of the structure, usually used in reference to petals or leaves



cleistogamous

flowers that are self-fertilized while still closed; e.g., violets (*Viola*)

ANTONYM *chasmogamous*

climber

plant that grows upward by leaning against or attaching itself to support structures, which may be other plants

climbing

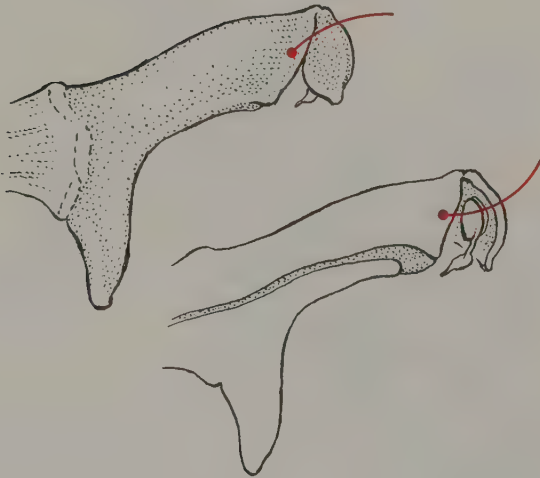
growing upward by leaning against or attaching to support structures

clinal variation

structural and/or genetic differences in plant populations along an environmental gradient such as elevation or moisture

clinandrium

part of the orchid column in which the anther is located



clonal

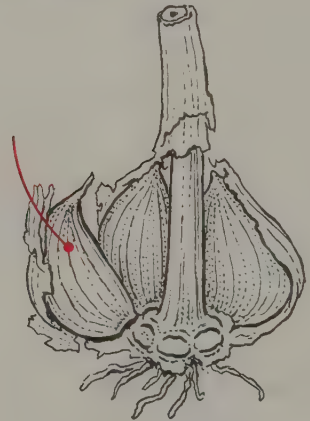
of or pertaining to a clone

clone

a plant that is genetically identical to one or more other plants, having originated vegetatively from the same parent plant (either naturally or through cultivation)

clove

one section of a bulb; e.g., a segment of garlic (*Allium sativum*)



clumped

growing in dense clusters

SYNONYM *caespitose, cespitose*

coat

covering, as on seeds

coccus

(plural cocci) individual section of a schizocarp, derived from a single carpel in a syncarpous pistil; e.g., cranesbills (*Geranium*)

SYNONYM *mericarp*

cochleate

forming a spiral like a snail shell

**coleorhiza**

protective covering on the growing root tip (radicle) of germinating seeds in the grass family (Poaceae)

collar

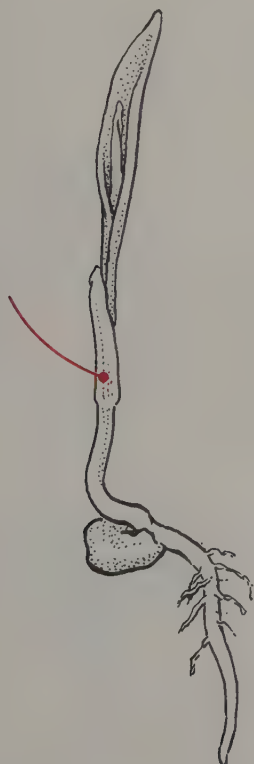
1. area where a grass leaf's sheath meets its blade; 2. base of a branch where it meets the parent stem and is usually somewhat swollen

coherent

having like structures weakly stuck together

coleoptile

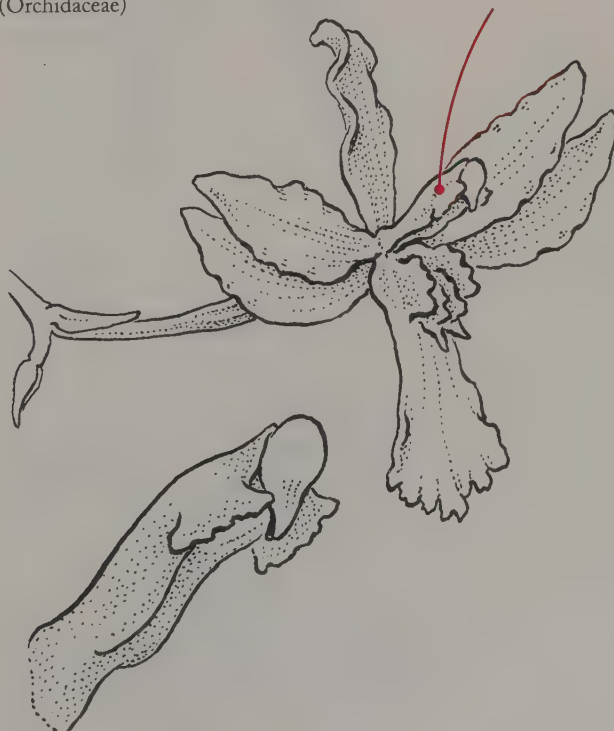
protective covering on the growing stem tip (plumule) of germinating monocotyledon seeds

**columella**

central axis of some flowers to which the carpels are attached, persists in fruit

column

1. staminal filaments united into one central structure, e.g., hibiscus (*Hibiscus*);
2. fused filaments and styles, e.g., orchids (Orchidaceae)

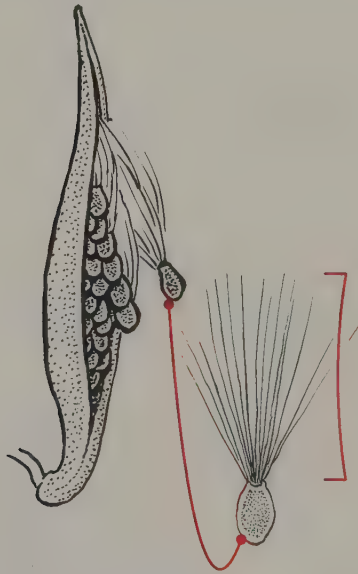


columnar

shaped like a column

coma

dense cluster of hairs attached to the end of a seed, facilitates wind dispersal; in milkweeds (*Asclepias*), the coma is sometimes called a pappus

**comose**

having a dense cluster of hairs (coma)

compatible

1. capable of sexually reproducing together; 2. capable of surviving being grafted together
- ANTONYM **incompatible**

complete

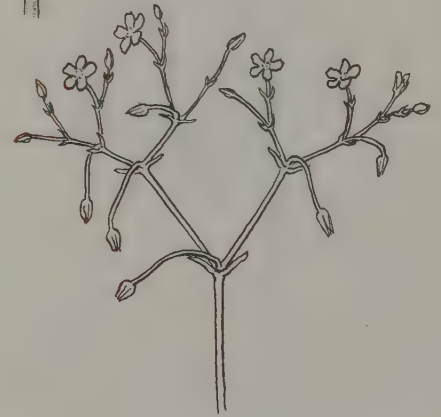
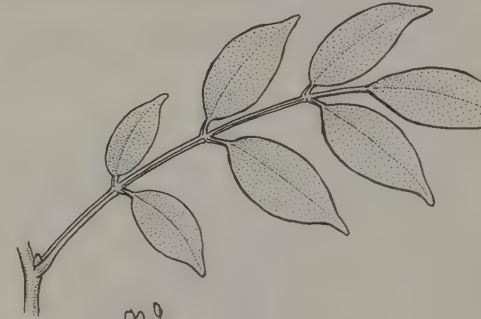
having all parts, as with flowers possessing all four whorls (calyx, corolla, androecium, gynoecium)

composite

vernacular name for any member of the sunflower family (Asteraceae); the name comes from the old, and still accepted, name for the family, Compositae

compound

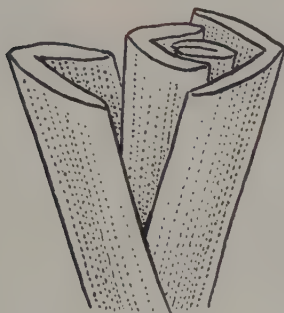
consisting of more than one section, division, or order of branching, most commonly applied to leaves and inflorescences



conduplicate

folded from the base to the apex with the upper (adaxial) surface facing itself, as with many fronds in the palm family (Arecaceae)

ANTONYM **reduplicate**



congested, conglomerate

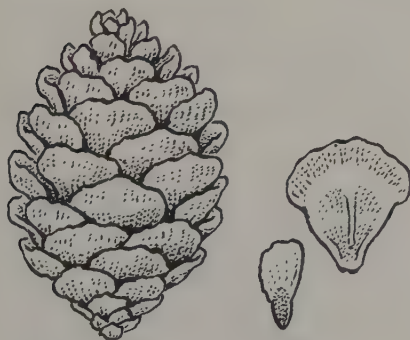
densely clustered

SYNONYM **glomerate**



cone

the reproductive structure of conifers, a central axis with seed- or pollen-bearing sporophylls arranged along it



conic, conical

shaped like a cone, attached at the wide end

conifer

plant that has cones and usually needles or scales, evergreen leaves; e.g., pines (*Pinus*) or yews (*Taxus*)

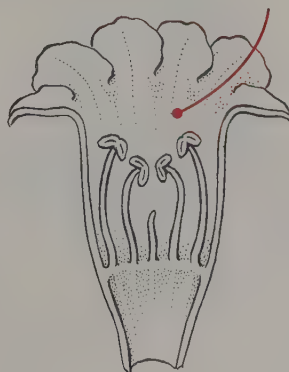
coniferous

having cones

connate

having like structures fused together

ANTONYM **discrete**, **distinct**

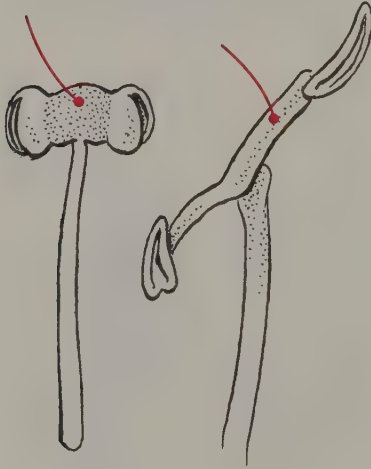


connate-perfoliate

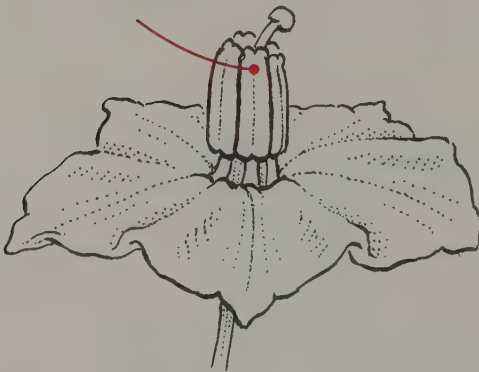
opposite leaves, stipules, or bracts fused at the base so appearing to be pierced by the stem

connective

tissue that connects the two anther sacs (thecae) in a stamen

**connivent**

separated at the base but close at the top, refers to the proximity of two or more unattached structures to each other

**conserved**

in nomenclature, a scientific name that has been officially maintained despite some violation of the International Code of Nomenclature for algae, fungi, and plants

conspecific

classified as the same species

constricted

narrowed

SYNONYM **contracted**

contiguous

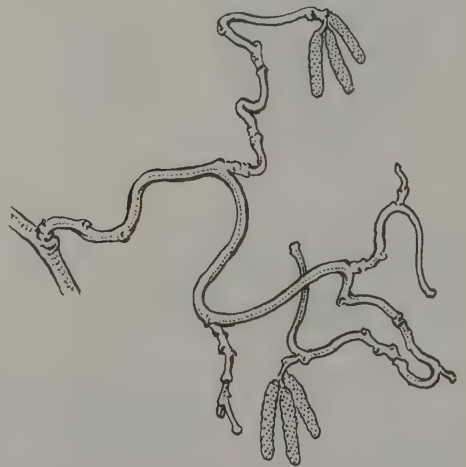
touching and continuing without a break but not fused

continuous

unbroken

contorted

twisted, flexed, or bent out of shape



contracted

narrowed

SYNONYM **constricted**

convolute

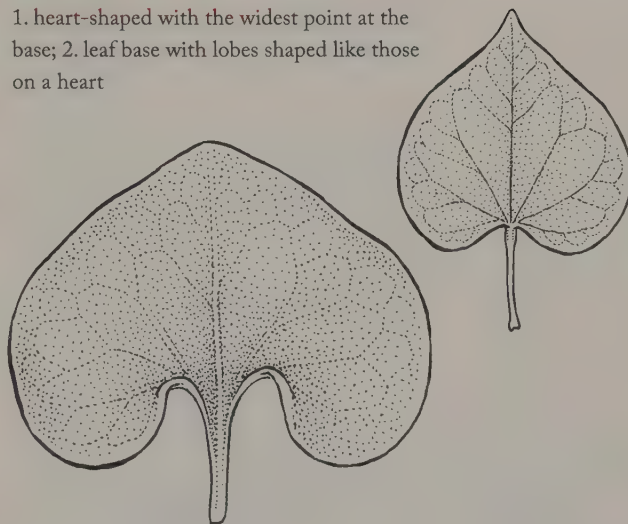
like parts arranged so that each one is overlapping the next, as with some flowers' petals

**coppice**

1. to periodically prune woody plants to the ground for the purpose of causing sprouts to form from the stumps; 2. stand of trees and/or shrubs that have been cut to the ground to cause sprouting

cordate, cordiform

1. heart-shaped with the widest point at the base; 2. leaf base with lobes shaped like those on a heart

**coriaceous**

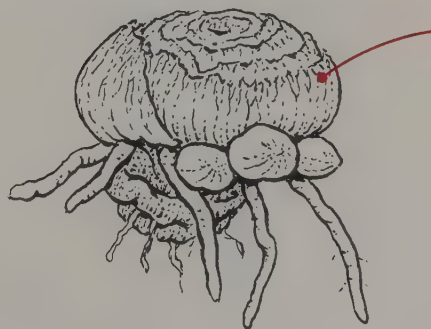
leathery

cork

waterproof outer layer of bark

corm

underground storage structure composed of dense stem tissue covered in papery leaf bases



cormel

small corm that develops at the base of a larger corm

cornute

horned

corolla

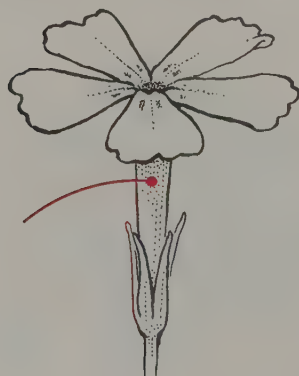
collective term for the petals of a flower

**corona**

structure or collection of structures between the corolla and androecium of some flowers, often crown-like; e.g., daffodils (*Narcissus*), milkweeds (*Asclepias*)

**corolla tube**

hollow, elongate structure formed by the fusion of a flower's petals



coroniform

shaped like a crown

corpusculum

often sticky central portion of a pollinarium that connects the translator arms that hold the pollinia in milkweeds (*Asclepias*)

**corruptule**

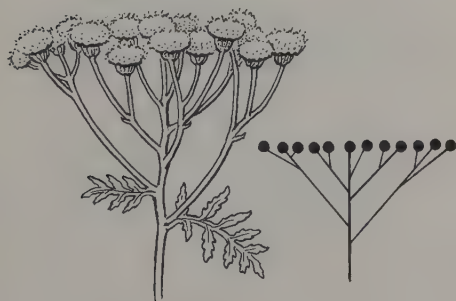
unfertilized cycad ovule that ripens into what looks like a mature seed but is not viable

cortex

tissue between the vascular tissue and the epidermis in roots and shoots

corymb

branched inflorescence with flowers borne along an elongate axis and having lower branches longer than upper so as to present flowers on a rounded or flat plane at the top

**cosmopolitan**

distributed worldwide, or nearly so

SYNONYM ubiquitous

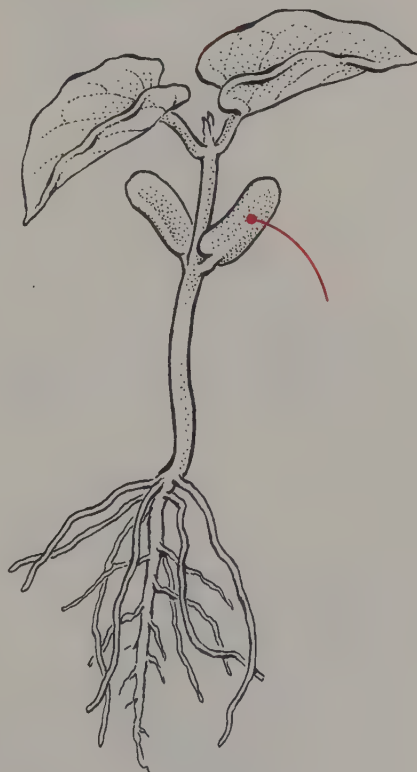
costa

(plural costae) leaf or leaflet rib or protruding midvein; in palms (*Arecaceae*), a petiole extending into the leaf blade

cotyledon

one of a seed's first leaves

SYNONYM seed leaf

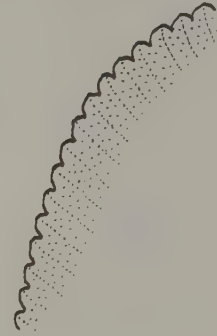


creeping

growing along the ground, rooting at the nodes

**crenulate**

having a minutely scalloped margin

**crenate**

having a scalloped margin

**crenation**

individual scallop of a crenate margin

crest

surface ridge

crested

having irregular growth resulting in a mass of tissue produced, usually, at the tip of a stem or inflorescence

SYNONYM *fasciated*

crispate, crisped

ruffled or crinkled

cross

1. breeding of one organism with another that may be of the same or different species but which possesses different traits; 2. plant resulting from such breeding; see also *hybrid*

cross-compatible

describes a pair of plants when one is capable of being fertilized by the other and vice versa

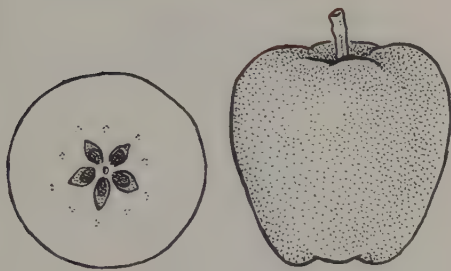
cross-pollination

when the pollen of one plant lands and germinates on the stigma of another plant

cross section

cut across the main axis, abbreviated as x.s.

ANTONYM longitudinal section



crotch

axil where two branches or a branch and a trunk join

crown

1. tree apex; 2. top of the persistent portion of an herbaceous perennial; 3. corona



crozier

coiled fern frond in the process of unfurling from bud

SYNONYM fiddlehead

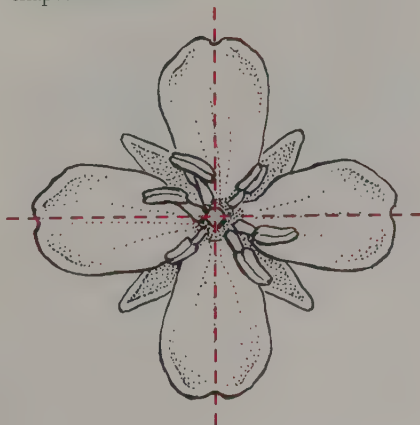


crucifer

vernacular name for any member of the mustard family (Brassicaceae); the name comes from the old, and still accepted, name for the family, Cruciferae

cruciform, cruciate

shaped like a cross



crustaceous

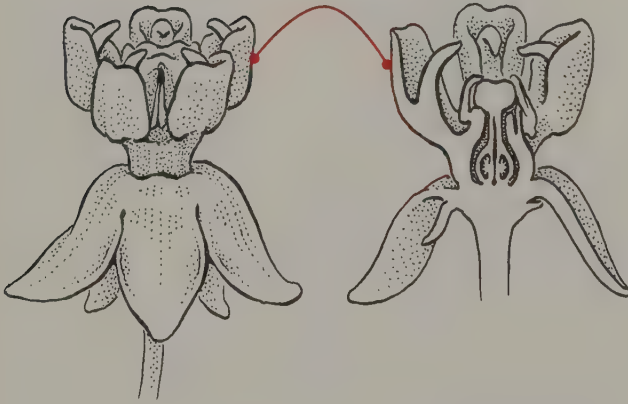
brittle

cryptogam

plant reproducing with spores, not seeds

ANTONYM **phanerogam****cucullate**

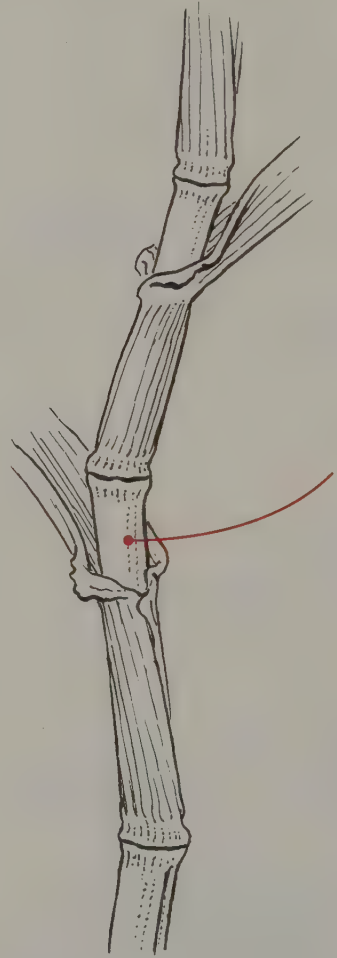
hooded

cucullushood-shaped structure, especially that of the corona in milkweeds (*Asclepias*); see also **galea**SYNONYM **hood****cucurbit**

vernacular name for any member of the gourd family (Cucurbitaceae), including cucumbers, pumpkins, and squash

culm

jointed stem of grasses and sedges

**cultigen**

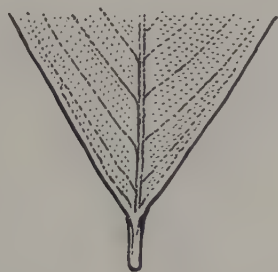
a plant that is known only in cultivation, of which no wild individuals exist

cultivar

a plant selected from the wild or intentionally bred that differs from the typical member of the species from which it was selected or bred; cultivar names must be capitalized and written in single quotes after the scientific name, e.g., *Rhus typhina* 'Tiger Eyes'

cuneate, cuneiform

wedge-shaped with the narrowest point at the base



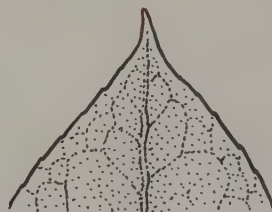
cuspid

abrupt, sharp point; see also *mucro*

cuspidate

coming to an abrupt, short, stiff, sharp point

SYNONYM *mucronate*



cuticle

waxy outer layer of the epidermis

cutting

a part of a plant usually taken for use in propagation

cupulate

shaped like a cup; having a cupule

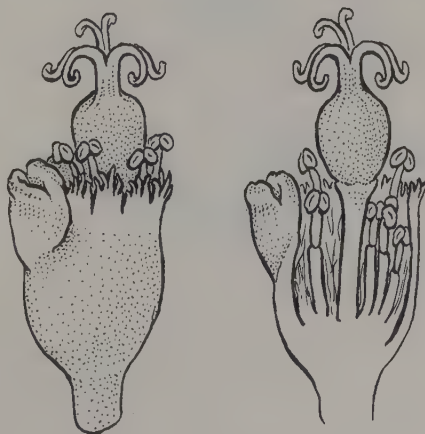
cupule

cup-shaped structure subtending fruit; e.g., an acorn's cap



cyathium

(plural *cyathia*) "false flower" inflorescence of the genus *Euphorbia*



cycads

gymnosperms that resemble palms (Arecaceae) but which reproduce with cones (with the exception of female plants of the genus *Cycas*, whose sporophylls are not aggregated into cones)

cyclic

occurring in whorls

cylindrical, cylindric

shaped like a cylinder

cyme

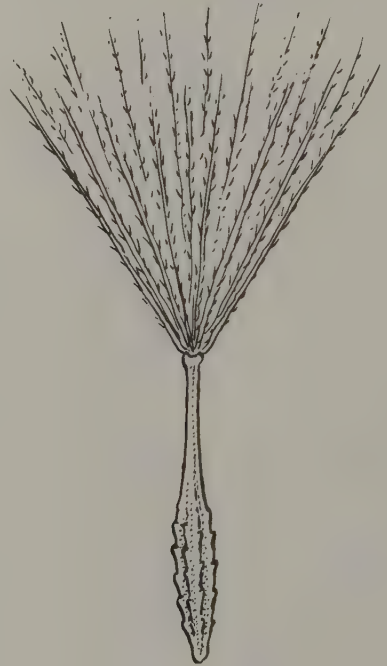
unbranched or branched inflorescence with the axis terminating in the oldest flower that is basally or centrally located, younger flowers branch on one or more sides; compound cymes have flowers presented on a rounded or flat plane at the top

**cymose**

having a cyme

cypsela

small, dry, indehiscent fruit derived from a pistil of two fused carpels; e.g., seeds of dandelion (*Taraxacum officinale*) and other fruit in the sunflower family (Asteraceae)



D

D

damping off

rotting of seedlings caused by a number of pathogens and resulting in death

DBH

= Diameter at Breast Height; measurement of trunk size taken at about one and a half meters (five feet) above ground, the average height of an adult's chest

deadhead

to remove old flowers to encourage more flowers to bloom

deciduous

falling from attachment as with leaves and stipules; see also *persistent*

ANTONYM *evergreen*

decumbent

lying or growing flat along the ground with the ends turning upward

decurrent

fused or clasping downward, as with some leaf bases and stipules



decussate

opposite leaves arranged on the stem at alternating angles of 90° so as to form a cross pattern when viewed down the branch from the tip to the bottom or vice versa

**dehiscence**

method of opening; e.g., circumscissile, loculicidal, poricidal, septicidal

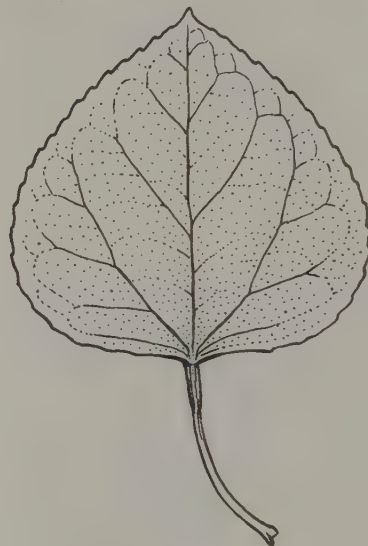
dehiscent

opening at maturity, as with anthers to release pollen and some fruits to release seeds

ANTONYM indehiscent

deltoid, deltate

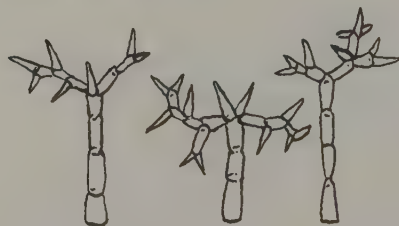
equilateral triangle-shaped, with one of the flat sides on the bottom and the point of attachment in the middle of that flat side

**dendriform, dendroid**

shaped like a tree

dendritic

branched like a tree



dentate

having teeth pointing outward, perpendicular to the margin

**depauperate**

fewer than or smaller than normally expected

depressed

pushed in or flattened from above

descending

pointing downward

determinate

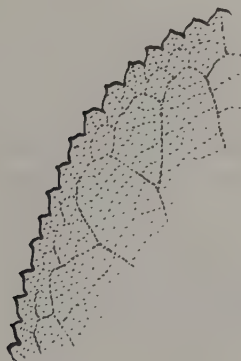
1. inflorescence of flowers that mature from the top down or from the center to the sides;
2. growth that terminates in the production of an organ such as a flower, or the abortion of the apical meristem

dentation

individual tooth of a dentate margin, or the whole margin itself

denticulate

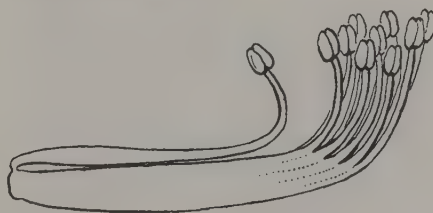
having minute teeth pointing outward, perpendicular to the margin

**di-**

prefix meaning two

diadelphous

stamens fused together by their filaments into two groups; e.g., pea flowers (Fabaceae subfamily Papilionoideae)

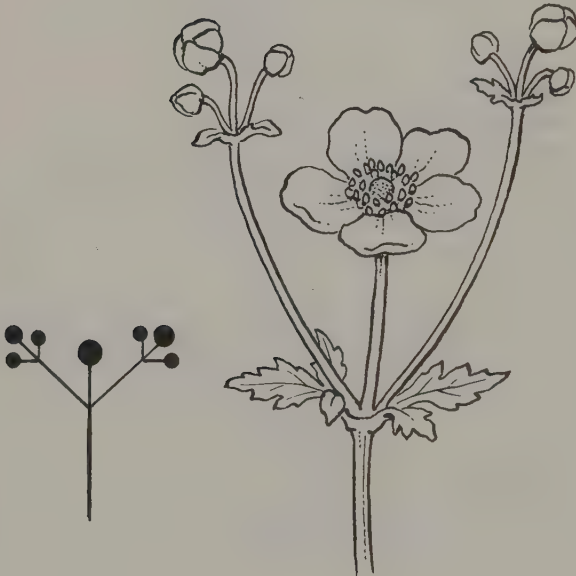


diandrous

having two stamens

dichasium

cymose inflorescence with two opposite flowers (simple) or branching units (compound) produced laterally from each axis

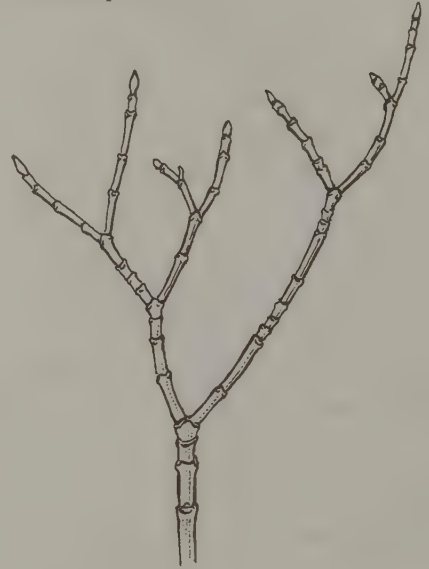
**dichogamous**

having female and male reproductive whorls maturing at different times

ANTONYM **homogamous**

dichotomous

1. branching pattern in which each branch splits into two branches; 2. type of identification key, in which each step has two choices and each choice leads to a different subset of options

**dicot**

shortened name (from dicotyledon) for the artificial assemblage of plants that typically have two seed leaves (cotyledons), flower parts in multiples of four or five, and net-veined leaves

ANTONYM **monocot**

dicotyledonous

having two seed leaves (cotyledons)

**didynamous**

having two pairs of stamens that are not equal in length

**diffuse**

spreading

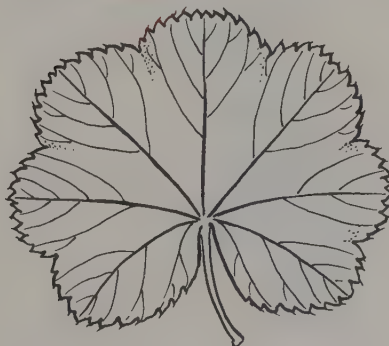
digitate

having veins, lobes, leaflets, or dissections all arising from a single point, usually at the top of the petiole, like fingers from a palm

SYNONYM **palmate**

didymous

occurring in pairs



dilated

expanded

dimorphic

having two different forms, as in having fertile and sterile fronds of two different morphologies; e.g., sensitive fern (*Onoclea sensibilis*)

**dioecious**

having unisexual flowers borne on separate female or male individuals

ANTONYM **monoecious**

diploid

having two sets of chromosomes ($2n$); see also **haploid**, **polyploid**, **tetraploid**

diplostemonous

1. having two times the number of stamens as petals; see also **haplostemonous**; 2. having two distinct sets of stamens, the outer whorl opposite the sepals and the inner whorl opposite the petals

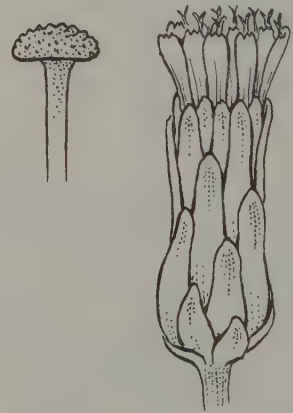
ANTONYM 2. **obdiplostemonous**

disarticulating

separating along a juncture at maturity

discoïd

1. disk-like; 2. inflorescence composed of only disk flowers, as with some plants in the sunflower family (Asteraceae)

**discrete**

free from similar parts

SYNONYM **distinct**

ANTONYM **connate**

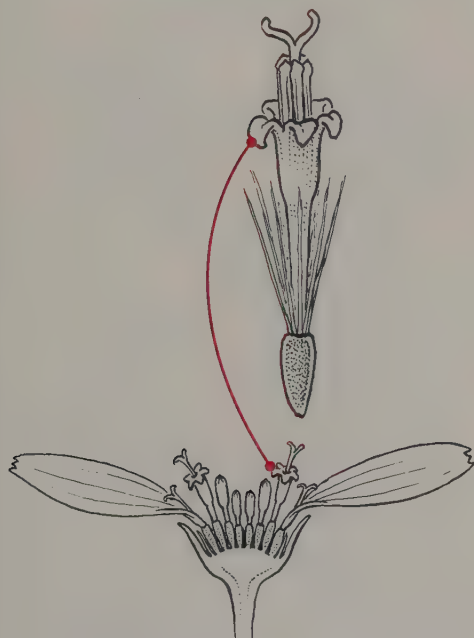
disk, disc

expansion of receptacle tissue in some flowers, may be nectariferous

disk flower

flower in the sunflower family (Asteraceae) lacking an expanded corolla and usually occurring in the central portion of the capitulum/head inflorescence

ANTONYM *ligulate flower*, *ray flower*

**dissected**

deeply divided

**distal**

tip, the end farthest from the point of attachment

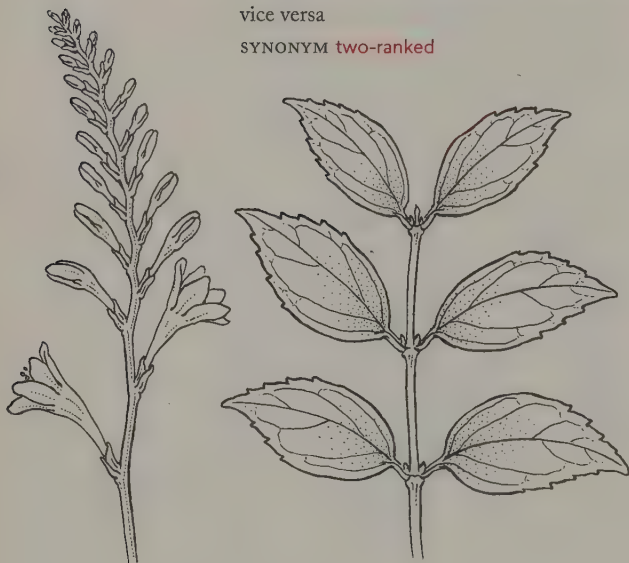
ANTONYM *proximal*



distichous

occurring in two opposite rows along a central axis, as with leaves on a stem, making the entire structure appear flat when viewed down the axis from the tip to the bottom or vice versa

SYNONYM **two-ranked**

**distinct**

free from similar parts

SYNONYM **discrete**

ANTONYM **connate**

divaricate

widely spreading, usually in reference to branching

divergent

spreading

**divided**

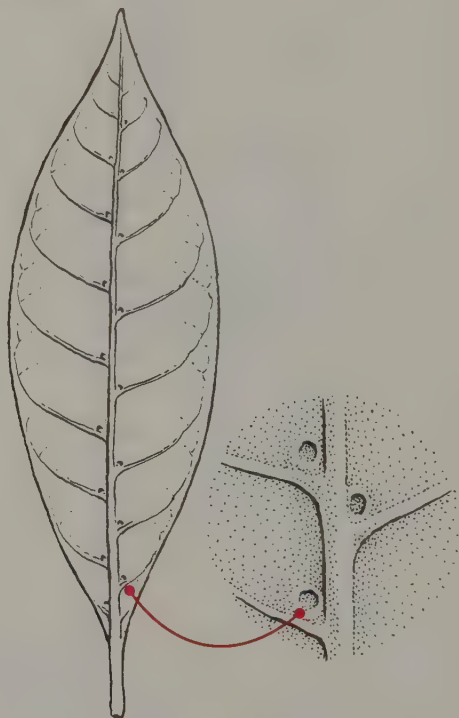
split into two or more segments

division

1. method of propagation in which a perennial plant (or more commonly, a clump of perennial plant clones) is physically split into two or more plants; 2. taxonomic rank above class and below kingdom, plant equivalent to phylum for animals, plant division names end in “-ophyta”

domatium

(plural domatia) small pit or pubescent surface that serves as shelter for invertebrates, often in vein axils



dormant

not actively growing, resting

dorsal

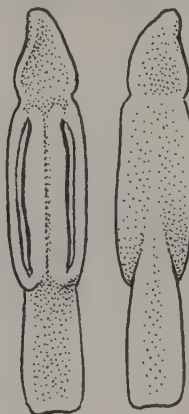
1. pertaining to the back, the surface facing away from the axis, variously treated as synonymous with the upper (adaxial) surface or the lower (abaxial) surface; 2. the upper, vertical sepal in orchid flowers

ANTONYM 1. *ventral*



dorsiventral

1. upper (ventral) and lower (dorsal) surfaces with different appearances; 2. flattened



doubled

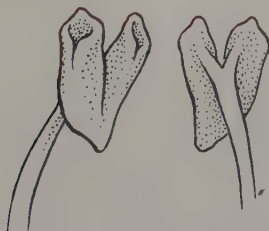
having more than the usual number of parts in a floral whorl; e.g., roses (*Rosa*) that have a proliferation of petals

SYNONYM *pleiomerous*



dorsifixed

attached on the back, as with filaments attached to the back of anthers; see also *basifixed*, *medifixed*, *versatile*



double samara

fruit derived from a two-carpellate ovary that splits at maturity into two winged sections (mericarps that resemble samaras); e.g., the fruit of maples (*Acer*)

SYNONYM **samaroid schizocarp**

**doubly crenate**

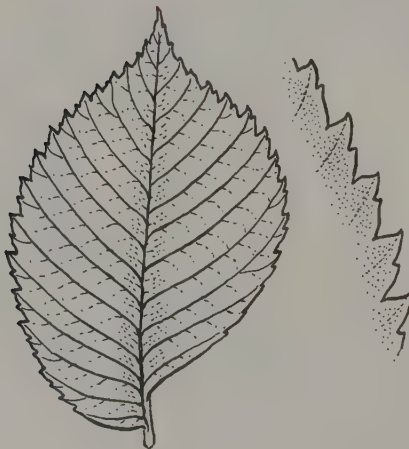
two-tiered scalloped margin where larger scallops have smaller scallops on them

SYNONYM **bicrenate**

doubly serrate

margin teeth having teeth of their own, all pointing up toward the apex

SYNONYM **biserrate**

**drip tip**

elongated, pointed leaf apex, which allows excess water on the leaf surface to drain quickly

**drooping**

hanging or bent downward, as with herbaceous parts of dehydrated plants

dropper

shoot growing downward from a bulb or corm, ending in a new bulb or corm

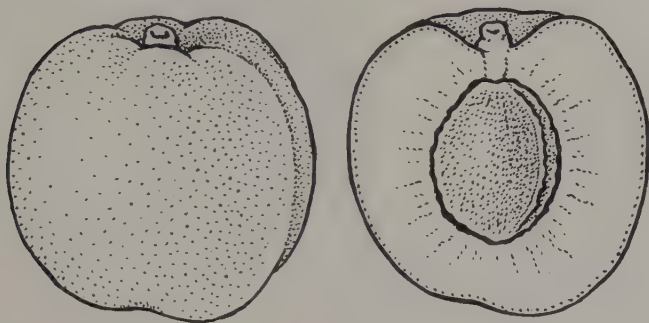
SYNONYM **sinker**

drupaceous

1. drupe-like; 2. bearing drupes

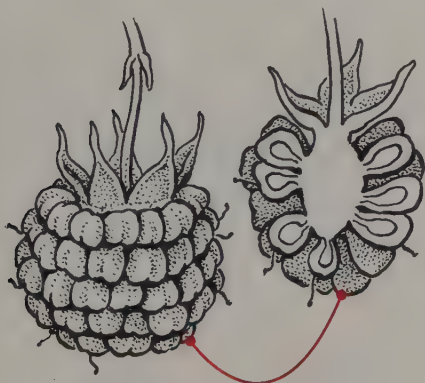
drupe

fleshy, indehiscent fruit consisting of an exocarp (usually thin), mesocarp (usually fleshy), and a bony or stony endocarp (also called a stone or pit); e.g., peaches and cherries (*Prunus*)



drupelet

small drupe, as with those formed by individual pistils in an aggregate fruit; e.g., raspberries and blackberries (*Rubus*)



E

e-

prefix meaning lacking, without; see also **ex-**

ear

grass spike inflorescence and the infructescence that develops from it; e.g., ear of corn (*Zea mays*)



eared

earlobe-shaped; having auricles

SYNONYM **auriculate**

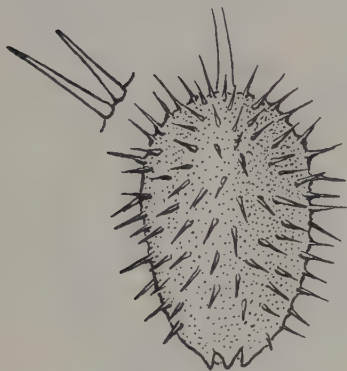
eccentric

not centrally located on an axis



echinate

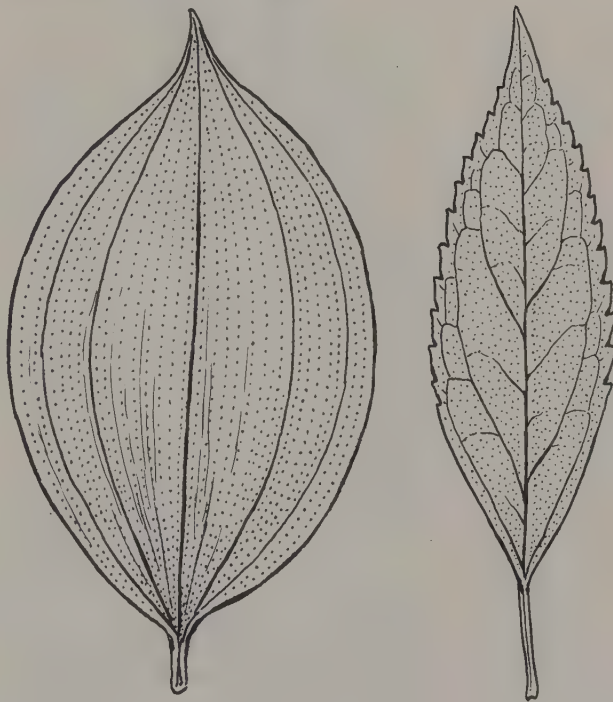
having short stiff hairs or prickles

**ellipsoid**

three-dimensionally ellipse-shaped, broadest in the middle and circular in cross section

elliptic

ellipse-shaped, broadest in middle

**echinulate**

having very short stiff hairs or prickles

edaphic

pertaining to soil; used in the context of how soils influence plant growth and communities

eglandular

lacking glands

elaiosome

fleshy appendage near the hilum on the seed coat, attracts ants for seed dispersal, as with the seeds of violets (*Viola*)

**elongate**

longer than wide

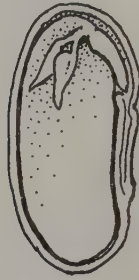
emarginate

having a rounded apex with an abrupt and shallow indentation in the center

SYNONYM **retuse**

embryo

immature plant in a seed

**emergent**

growing above the surface of, e.g., water or the forest canopy

emersed

rising above the water's surface, as with some aquatic plants

ANTONYM *submerged*, *submersed*

enation

outgrowth from a surface, as in the leaf-like structures on whisk ferns (*Psilotum*)

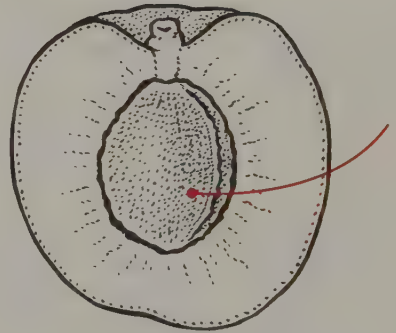
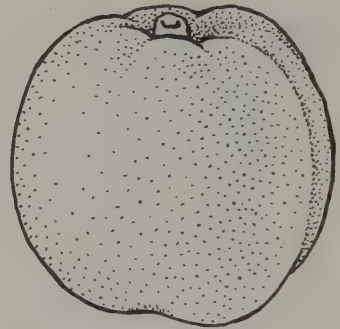
SYNONYM *excrecence*

endemic

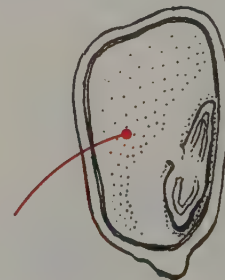
native and restricted to a particular area, habitat, or soil type

endocarp

innermost layer of the fruit wall (pericarp)
e.g., the pits of peaches and cherries (*Prunus*)

**endosperm**

seed nutritive tissue for the developing embryo



ensiform

lance- or sword-shaped with the widest point toward the base

SYNONYM *gladiate, lanceolate*

**entomophagous**

insect-eating

SYNONYM *insectivorous*

entomophilous

pollinated by insects

ephemeral

short-lived or short-lasting; most commonly applied to spring ephemerals, which are plants that grow, flower, fruit, and die back completely by mid summer

SYNONYM *evanescent*

epi-

prefix meaning on (e.g., epipetalous) or above (e.g., epigeal)

epicalyx

bracts subtending the flower and appearing as a whorl beyond the calyx

SYNONYM *calyculus*

**entire**

undivided and without lobes or teeth along the margin



epicarp

outermost layer of the fruit wall (pericarp);
e.g., the skin of a peach (*Prunus persica*)

SYNONYM **exocarp**

epicotyl

the region of an embryo or seedling above
the cotyledons

ANTONYM **hypocotyl**

**epidermal**

pertaining to the epidermis

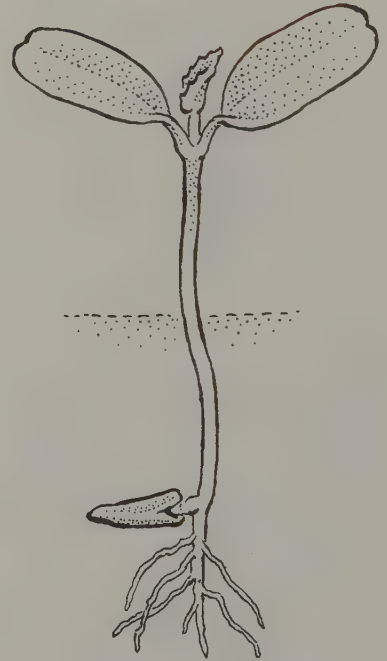
epidermis

multi-layered outermost surface tissue of
plants

epigeal, epigeous

germination type in which the cotyledons
rise above ground attached to the developing
seedling and become photosynthetic

ANTONYM **hypogeal, hypogeous**



epigynous

flower with an inferior ovary



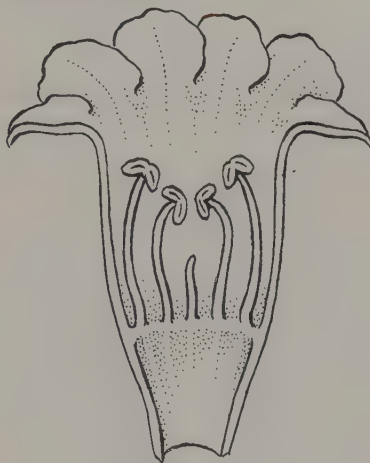
epilithic

growing attached to rock

SYNONYM **epipetric**

epipetalous

attached to petals



epipetric

growing attached to rock

SYNONYM **epilithic**

epiphyllous

growing attached to the leaf of another plant
but not parasitizing that plant

epiphyte

a plant that grows attached to another plant
but which does not parasitize that plant

epiphytic

growing attached to another plant but not
parasitizing that plant

epizoochory

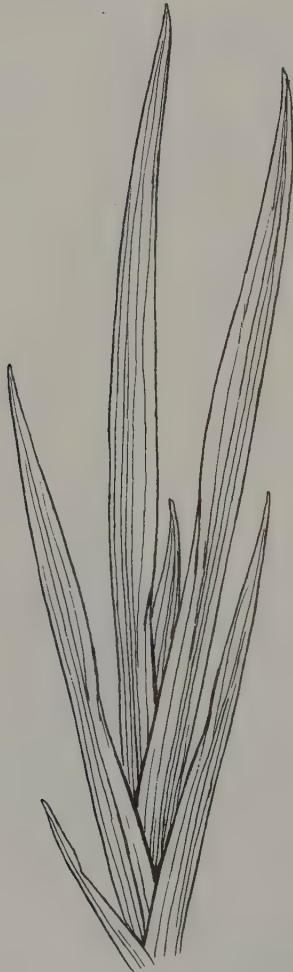
seeds externally animal-dispersed, as with seeds or fruits that stick to animal fur

equilateral

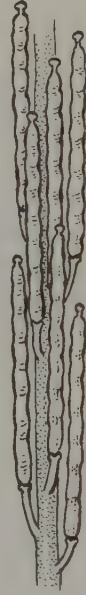
having equal sides

equitant

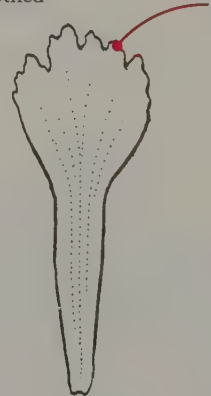
having partially concentric leaf bases, as with irises (*Iris*)

**erect**

vertical, upright

**erose**

irregularly toothed

**escaped**

said of a plant that is now reproducing on its own in the wild but which arrived in the area through cultivation

espalier

1. the method of training trees or shrubs to grow flat against a wall or fence, or in the form of a wall; 2. a plant that has been grown in this way



estipellate

lacking stipels

SYNONYM *exstipellate*

estipulate

lacking stipules

SYNONYM *exstipulate*

estivation, aestivation

arrangement of perianth parts in bud; see also *vernation*

etaerio

formed from the fusion of multiple, separate unicarpellate pistils in a single flower, may consist of tiny versions of one of many different fruit types including samaras, drupes, achenes, follicles, etc.; e.g., raspberries and blackberries (*Rubus*)

SYNONYM *aggregate fruit*

etiolated

pale and elongated growth due to lack of sunlight

evanescent

short-lived or short-lasting; most commonly applied to spring ephemerals, which are plants that grow, flower, fruit, and die back completely by mid summer

SYNONYM *ephemeral*

even-pinnate

pinnately compound with an even number of leaflets, terminating in a pair of leaflets; see also *imparipinnate*, *odd-pinnate*

SYNONYM *paripinnate*



everbearing

continuously producing flowers and fruits throughout the growing season

evergreen

holding on to at least some live leaves throughout the year

ANTONYM **deciduous**

everlasting

flower that very closely resembles its fresh state when dry; e.g., strawflower (*Xerochrysum bracteatum*) and other members of the sunflower family (Asteraceae)

ex-

prefix meaning lacking, without; see also **e-**

excrecence

outgrowth from a surface, as in the leaf-like structures on whisk fern (*Psilotum nudum*)

SYNONYM **enation**

exfoliate

remove the outer layers in thin pieces, as with the bark of birches (*Betula*)

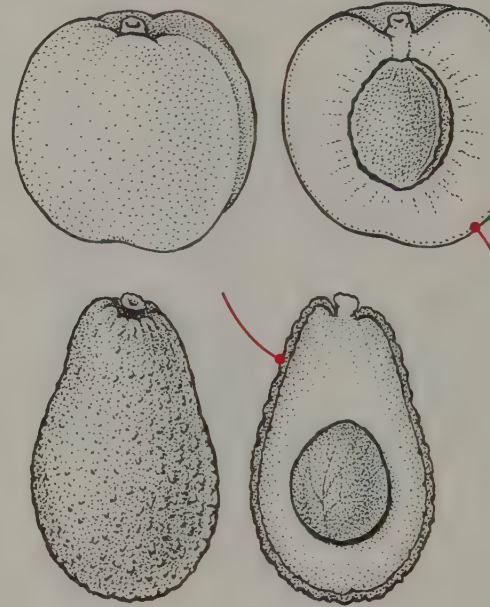
exine

outermost layer of the pollen grain wall

exocarp

outermost layer of the fruit wall (pericarp); e.g., the skin of a peach (*Prunus persica*)

SYNONYM **epicarp**

**exotic**

not native to a particular area, habitat, or soil type; introduced; e.g., tropical plants grown in temperate climates

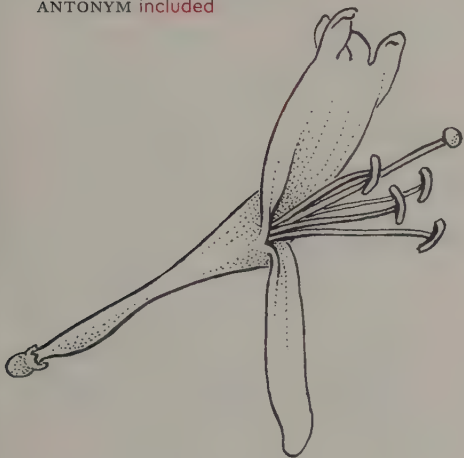
explant

in tissue culture, the part of the parent plant that is transferred to growth medium for culturing

exserted

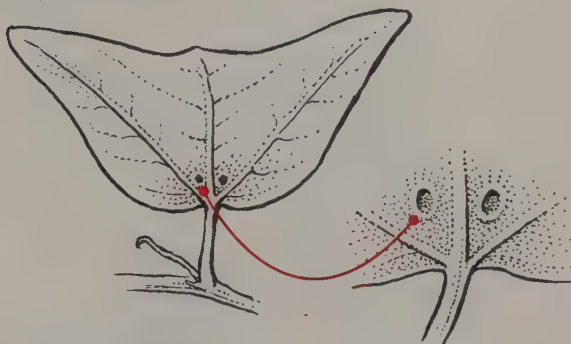
projecting or protruding, as with a style
extending beyond a corolla

ANTONYM *included*



extrafloral

outside of the flower, as with nectaries
located on leaves



ex situ

in a created environment, in cultivation

exstipellate

lacking stipels

SYNONYM *estipellate*

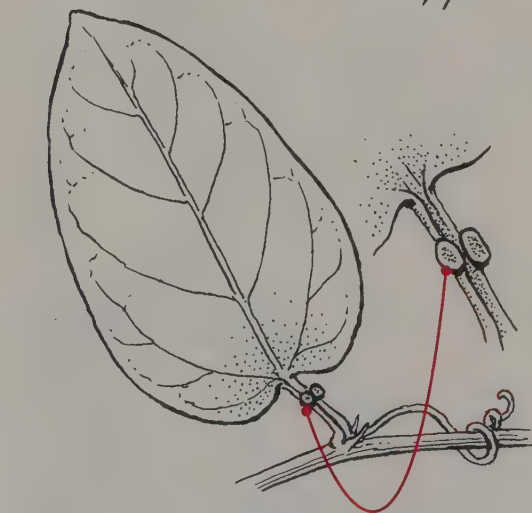
exstipulate

lacking stipules

SYNONYM *estipulate*

extra-

prefix meaning outside



extrastaminal

outside of the staminal whorl

extrorse

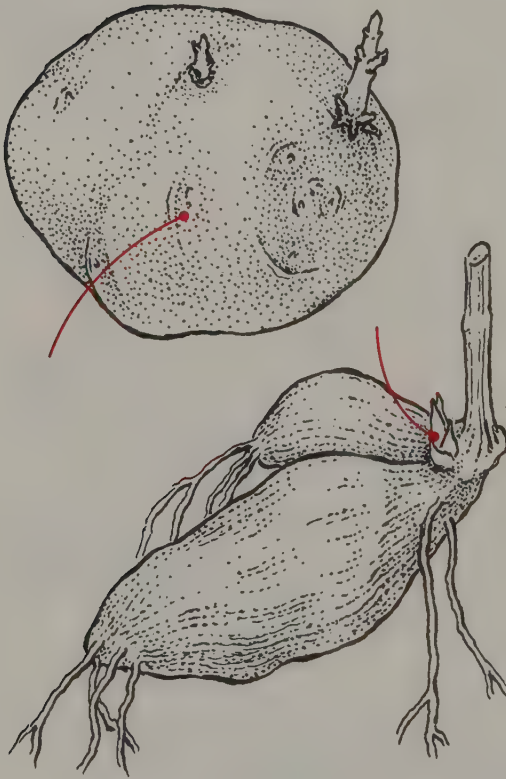
stamens facing and dehiscent out and away
from the flower's center

exudate

liquid released from damaged tissue

eye

1. node of some tubers, such as potato (*Solanum tuberosum*); 2. subterranean young vegetative or reproductive shoot buds of dahlias (*Dahlia*)



F

face

inner or upper surface of a plant organ

falcate, falciform

curved to one side like a sickle



fall

one of the three outer tepals (all sepals) in the flowers of irises (*Iris*); see also **standard**



fall-bearing

a fruiting shrub with primocanes that produce fruit in the autumn of their first year of growth; e.g., some raspberries and blackberries (*Rubus*); see also **summer-bearing**

false flower

inflorescence that closely resembles a single flower; e.g., dogwood (*Cornus florida*), *Euphorbia* cyathia, Asteraceae heads/capitula

SYNONYM **pseudanthium**

false fruit

seed-bearing structure resembling and often mistaken for a fruit but for which the majority of the tissue is non-ovary (may be from such structures as a hypanthium or receptacle); e.g., rose hips (*Rosa*)

SYNONYM **anthocarp**, **pseudocarp**

false indusium

(plural false indusia) a pocket in the margin of a frond or fold of the frond that covers a fern sorus



family

taxonomic rank above genus and below order; plant family names end in “-aceae”

fasciated

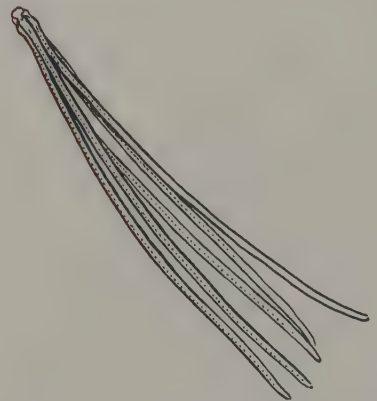
having irregular growth resulting in a mass of tissue produced, usually, at the tip of a stem or inflorescence

SYNONYM **crested**



fascicle

a bundle of like organs; e.g., pine needles



fasciculated

occurring in bundles or clusters



female flower

flower bearing fertile female structures (pistils) and no, or only infertile, male structures (stamens)



fastigate

having branches that occur in an erect broom-like cluster

faveolate, favose

honeycomb-like with neatly arranged depressions and ridges

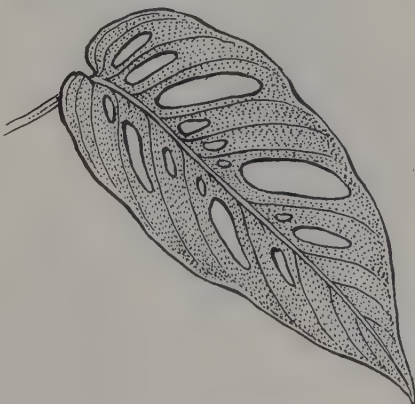
SYNONYM *alveolate*

feather

lateral branch on a current year's stem

fenestrate

having small window-like areas



ferruginous

reddish brown, rust- or chestnut-colored

SYNONYM *castaneous, rufous, rufus*

fertile

1. capable of sexual reproduction, may refer to an individual part (e.g., flower, frond, pistil, stamen) or an entire individual; 2. bearing flowers, cones, spores, or seeds

**fetid**

having a bad odor

fibrous

1. having fibers; 2. fiber-like

fibrous roots

root system in which the roots are of roughly the same diameter

**fiddlehead**

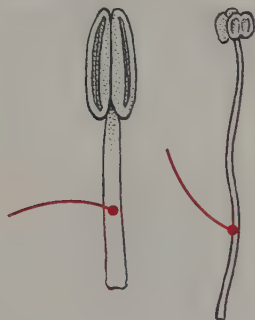
coiled fern frond in the process of unfurling from bud

SYNONYM *crozier*



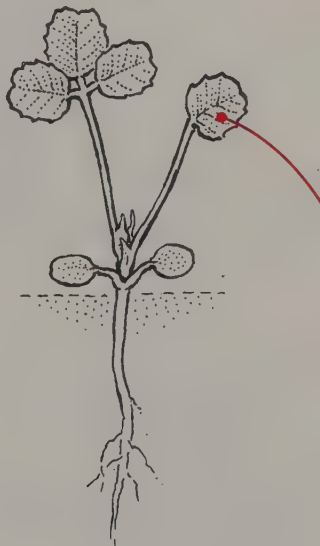
filament

1. stalk bearing the anther in a stamen; 2. thin fiber



first leaf

the first leaf of a seedling after the seed leaves, often markedly different in morphology from the mature plant's leaves

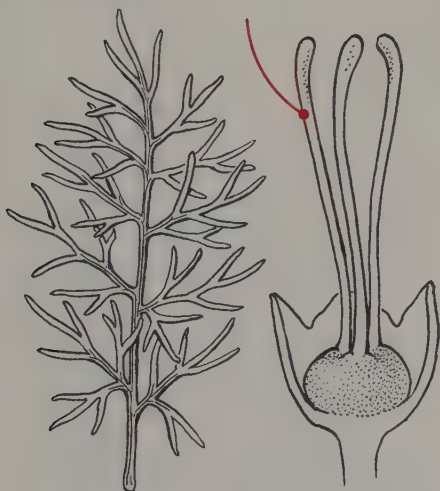


filamentous

1. having filaments; 2. filament-like

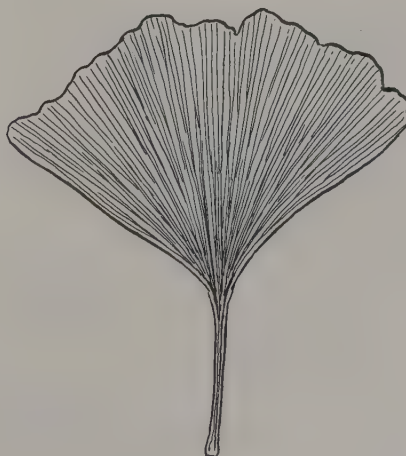
filiform

thread-like



flabellate, flabelliform

shaped like a fan; e.g., ginkgo (*Ginkgo*) leaf



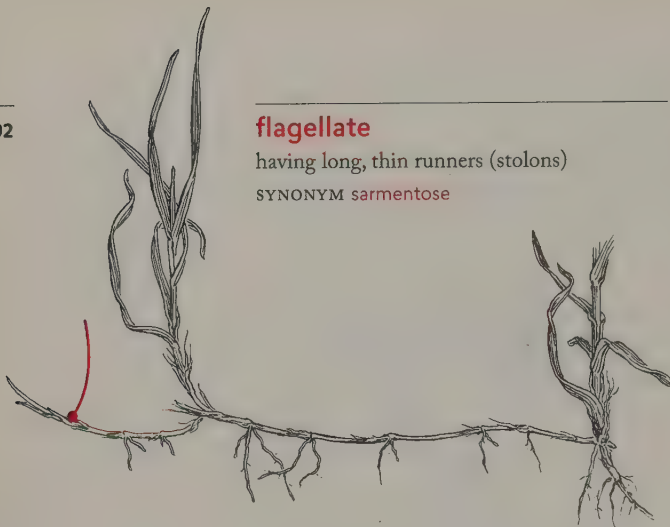
fimbriate

fringed in hairs, applied to margins

flagellate

having long, thin runners (stolons)

SYNONYM **sarmentose**

**fleshy**

succulent, water-conserving tissue

flexuose, flexuous

bending back and forth at angles in opposite directions, zigzagging, as with stems that have sympodial growth

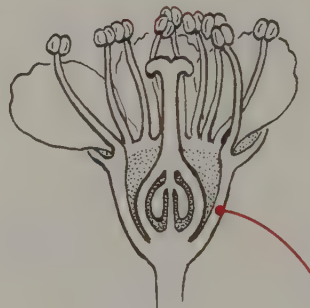
**floral**

pertaining to flowers

floral cup

tubular structure surrounding and fused to or free from the ovary, may be an expansion of the receptacle and/or a fusion of various components of the outer three floral whorls (calyx, corolla, androecium)

SYNONYM **hypanthium**

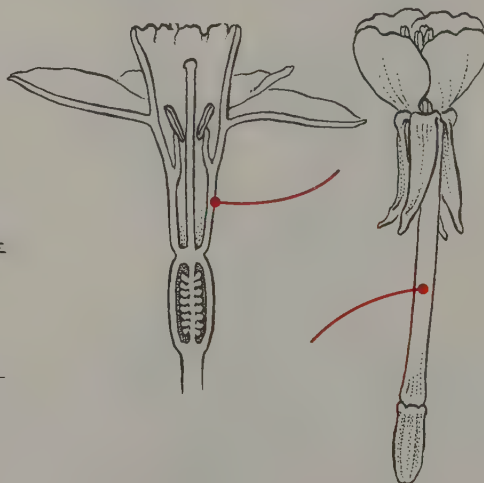
**floral envelope**

collective term for calyx (sepals) and corolla (petals)

SYNONYM **perianth**

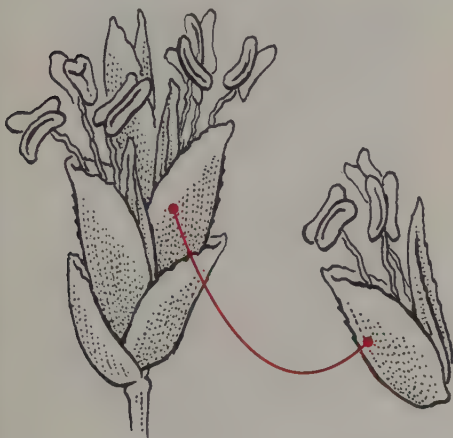
floral tube

fused tubular calyx or corolla



floret

1. small flower; 2. single flower within an inflorescence, e.g., in the sunflower (Asteraceae), carrot (Apiaceae), and mustard (Brassicaceae) families; 3. smallest unit of the grass family (Poaceae) inflorescence, consisting of a flower and the two subtending bracts (lemma and palea)



flush

emergence of leaves or flowers on woody plants

fluted

grooved with regularity in spacing, applied to cylindrical structures

foliaceous

leaf-like, usually applied to a bract or sepal



floricane

a fruiting shrub's second-year stem that bears fruits midway through the growing season; in some plants, such as raspberries and blackberries (*Rubus*), individuals with floricanes are called summer-bearing

ANTONYM **primocane**

flower

organ in angiosperms that, when complete, bears the female (pistil) and male (stamen) reproductive structures as well as a calyx and corolla

foliage

collective term for a plant's leaves

foliar

1. relating to leaves; 2. leaf-like

foliate

bearing leaves

foliolate

1. bearing leaflets; 2. leaflet-like

follicle

dry, dehiscent unilocular fruit opening along one line of suture, derived from a unicarpellate pistil; e.g., milkweeds (*Asclepias*)

**forb**

broadleaf herbaceous, non-tree-like plant, often applied to non-grass-like herbaceous plants that are grazed by animals

force

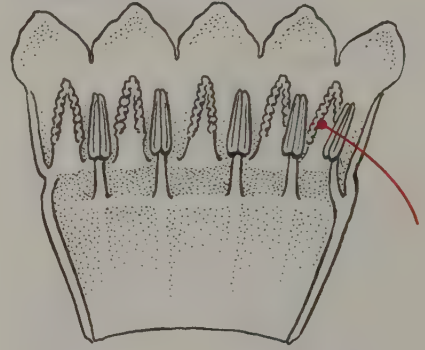
to cause a plant to bloom out of its normal season or sequence by using horticultural techniques

form, forma

taxonomic rank below species; individuals or populations usually differ from what is typical for the species in only very minor ways compared with those characters that define subspecies or varieties

fornix

(plural fornices) small arched projection in a flower's throat (inside a tubular corolla), as in many members of the borage family (Boraginaceae)

**foveolate**

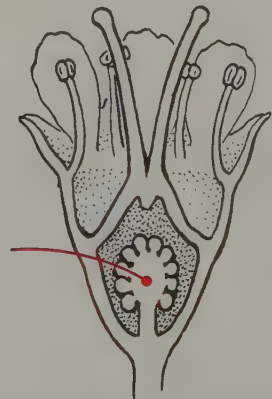
pitted with small depressions

free

not fused

free-central placentation

ovules borne on the freestanding central column of a unilocular ovary



frond

the leaf of a fern, palm, or cycad

**frost heaving**

phenomenon in which plants and soil move as a result of water freezing

SYNONYM **heaving**

fruit

sexual reproductive structure in which seeds are housed, a ripened ovary

fruit set

very early stage of fruit development when the ovary is just beginning to transform into the fruit; often marked by the style, corolla, and androecium falling off of the flower and the ovary starting to swell slightly

fruticose, frutescent

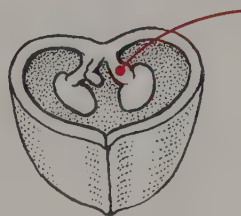
shrub-like

fulvous

reddish brownish yellow

funicle, funiculus

stalk that connects an ovule to an ovary wall or a seed to a fruit wall



funnel-shaped, funnel-form

shaped like a funnel with sides tapering downward into a narrow cylinder



furfuraceous

covered in soft, flaky scales

furrowed

having deep longitudinal grooves, most often applied to bark

fused

attached; includes both adnate and connate

fusiform

three-dimensionally shaped like a spindle, widest at the middle and tapering to a point at both ends

G

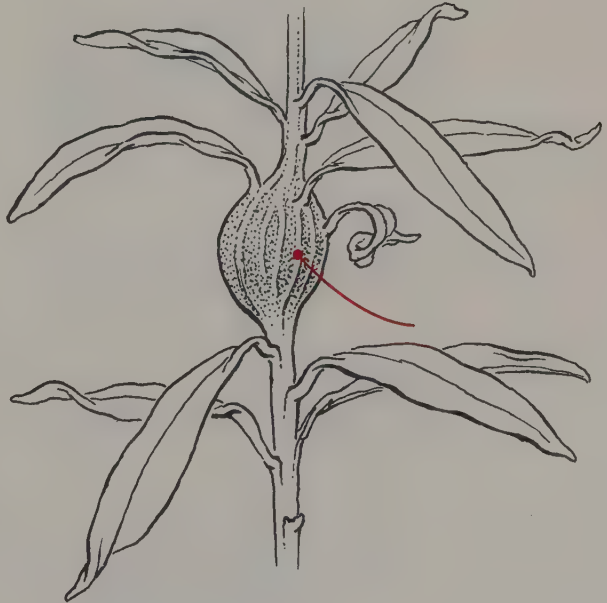
galea

upper petal or other floral structure that is helmet- or hood-like; e.g., monkshood (*Aconitum*)



gall

mass of plant tissue developed around a wound from a parasitic insect, mite, bacterium, fungus, etc.



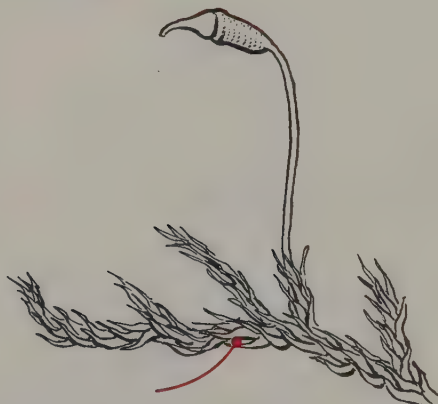
gametes

cells that combine in sexual reproduction, egg and sperm

gametophyte

life cycle generation in which a plant has one set of chromosomes (i.e., is haploid, $1n$) and produces gametes (sperm or eggs); in seed plants the gametophyte is the ovule and the pollen grain; the gametophyte is dominant in both time and size for non-vascular plants, making it their most conspicuous generation, as with mosses

ANTONYM **sporophyte**

**gamo-**

prefix meaning having like structures fused together (connate)

gamopetalous

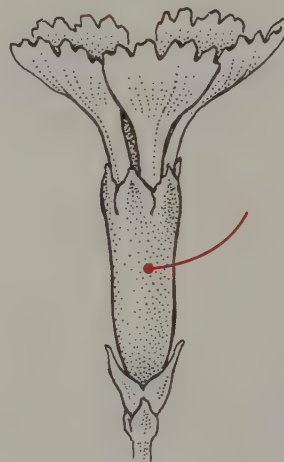
having a corolla that is at least partially fused

SYNONYM **'sympetalous**

**gamosepalous**

having a calyx that is at least partially fused

SYNONYM **synsepalous**

**gemma**

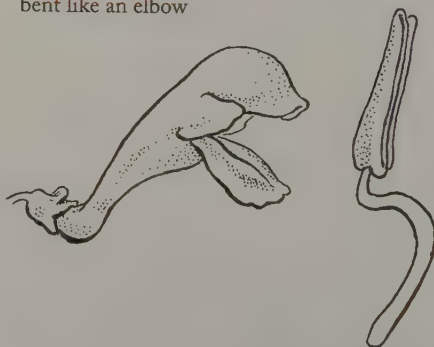
(plural gemmae) vegetative propagule that develops on a plant as a clump of cells or bud-like structure and then separates from the plant, most often associated with liverworts

genet

a clonal, genetically identical colony, individual plants in the colony are called ramets

geniculate

bent like an elbow



genus

(plural genera) taxonomic rank above species and below family, may also be within a subfamily and/or a tribe

geophyte

plant that survives harsh conditions underground as a root, bulb, corm, rhizome, or tuber

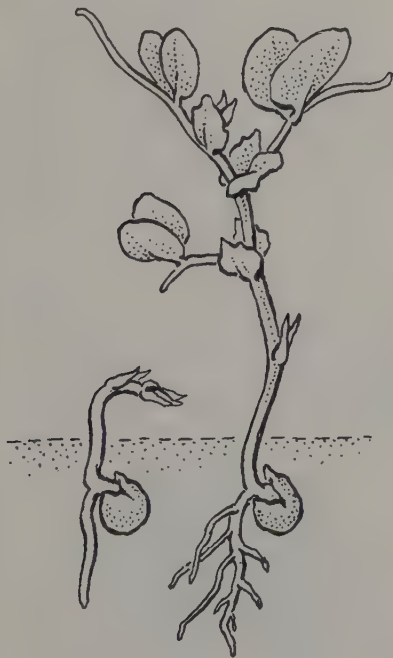
geotropism

growth of roots in the direction of gravity and shoots in the opposite direction

SYNONYM *gravitropism*

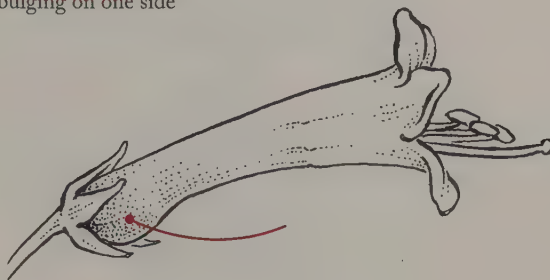
germination

process by which seeds or spores begin to grow



gibbous

bulging on one side



girdling

1. removing or cutting through the bark, including all live vascular tissue, all the way around a woody stem to prevent the flow of water and nutrients, results in the death of the plant or stem above the girdle; 2. removing only a very narrow and thin layer of bark tissue to increase fruit set and size in fruit-bearing plants, e.g., peach (*Prunus persica*) and grapes (*Vitis*)

SYNONYM 2. *cincturing*

glabrate, glabrescent

becoming hairless (glabrous), as with some leaves as they mature

glabrous

lacking hair

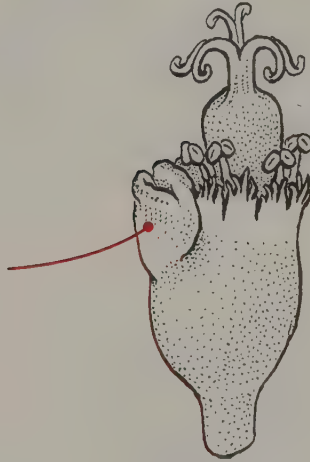
gladiate

lance- or sword-shaped with the widest point toward the base

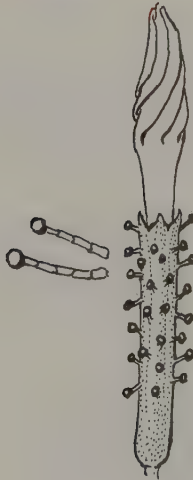
SYNONYM *ensiform*, *lanceolate*

gland

structure that produces oily or sugary secretions, usually to attract insects

**glandular**

having glands

**glaucous**

having a whitish waxy covering on the surface that easily wipes away

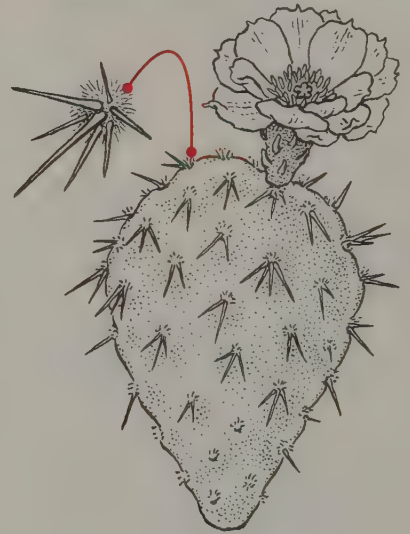
globose, globular

round in three dimensions

SYNONYM spherical

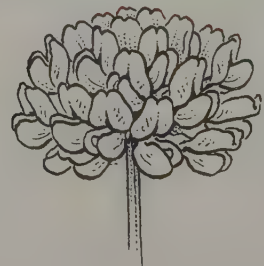
glochid

(plural glochidia) small barbed hair, as found at the nodes of cacti (Cactaceae)

**glomerate**

densely clustered

SYNONYM congested, conglomerate



glume

one of two lowermost bracts of a spikelet in grasses (Poaceae)



granular

having or consisting of small particles or projections similar to grains

gravitropism

growth of roots in the direction of gravity and shoots in the opposite direction

SYNONYM *geotropism*

grex

(plural greges) all offspring of a particular intentional hybrid cross, frequent with orchids (Orchidaceae) and azaleas (*Rhododendron*), e.g.; often used as an informal taxonomic rank.

grafting

method of propagation in which two or more woody plants are joined at cut surfaces; there are many types of grafting, but the most common joins the terminal end of a stem (called the scion) with a branch or young trunk from which the terminal portion has been removed (called the rootstock); grafting is the primary method by which woody fruit-bearing plants, e.g., apples (*Malus*), peaches and cherries (*Prunus*), are propagated

ground cover

plants grown for their ability to conceal the soil from view and protect it from erosion, these may be simply short, upright, tightly clumping plants or those that grow along the ground

growth habit

the form or appearance of a plant; e.g., shrub, tree, prostrate, climbing

SYNONYM *habit*

grain

1. dry, indehiscent fruit in which the single seed is fused to the pericarp; fruit of the grass family (Poaceae), derived from a unicarpellate pistil; 2. the vertical pattern of fibers in wood

SYNONYM 1. *caryopsis*



guttation

expelling of droplets of liquid from the leaf margin and apex

gymnosperm

plant bearing ovules naked upon sporophylls (such as pine cone scales) that develop into seeds upon sporophylls

gynandrium

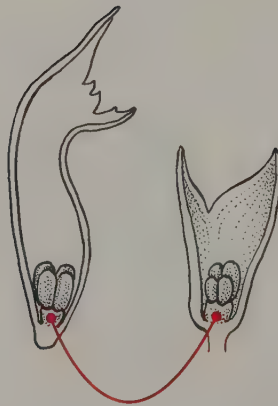
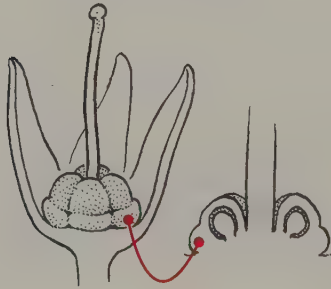
fused androecium and gynoecium, as in orchids (Orchidaceae)

gynandrous

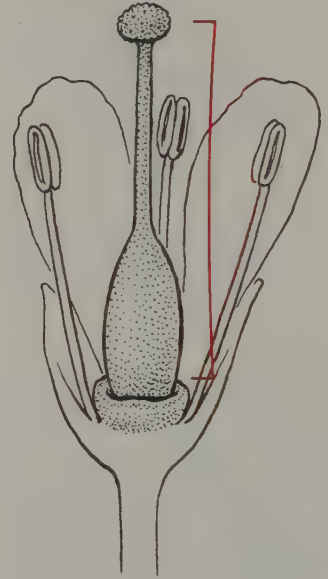
having male reproductive structures (stamens) fused with female reproductive structures (pistils)

gynobase

enlarged receptacle subtending the gynoecium, as in the mint (Lamiaceae) and borage (Boraginaceae) families

**gynoecium**

female reproductive portion of the flower, consists of single or multiple pistils

**gynophore**

stalk elevating the gynoecium

gynostegium

column of fused male (stamens) and female (pistils) reproductive structures, as in milkweeds (*Asclepias*)

H

habit

the form or appearance of a plant; e.g., shrub, tree, prostrate, climbing

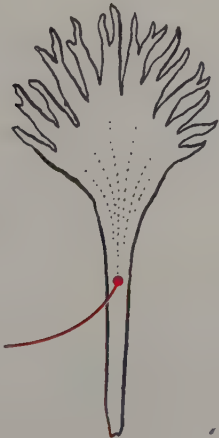
SYNONYM **growth habit**

habitat

conditions or type of location in which a plant grows; e.g., arid, wet, desert, prairie

haft

1. very narrowed petal or sepal base (claw) of some flowers; 2. petiole or stem with a green wing



hair

an outgrowth of the epidermis consisting of one or more elongated cells; see also **trichome**

halophyte

plant that can survive in salty habitats

haploid

having one set of chromosomes ($1n$); see also **diploid**, **polyploid**, **tetraploid**

haplostemonous

1. having as many stamens as petals; 2. having one set of stamens; see also **diplostemonous**

hardiness

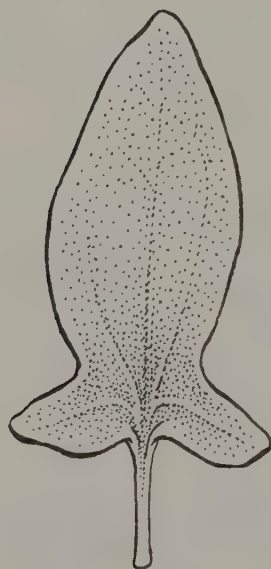
ability of a plant to survive in the average growing conditions of a particular location, most often used in reference to cold hardiness

hardiness zones

geographic classification system that informs people which plants may survive in particular areas based on their ability to tolerate the average minimum temperature of that area; first developed by the U.S. Department of Agriculture

hastate

arrowhead-shaped with basal lobes pointing outward from the midvein



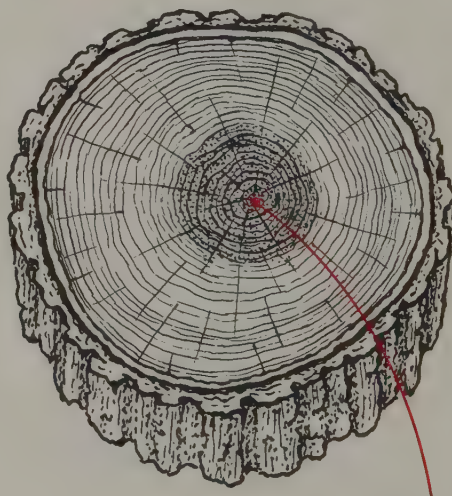
head

inflorescence of sessile flowers borne on a flattened and expanded portion of the inflorescence axis; the inflorescence of the sunflower family (Asteraceae)

SYNONYM **capitulum**

heartwood

central, older, darker wood of trees that is prized in woodworking



heaving

phenomenon in which plants and soil move as a result of water freezing

SYNONYM **frost heaving**

helicoid cyme

sympodial inflorescence with flowers borne on one side of the axis and forming a spiral; can be difficult to distinguish from a scorpioid cyme



herbaceous

of or pertaining to plants without above-ground woody growth

herbarium

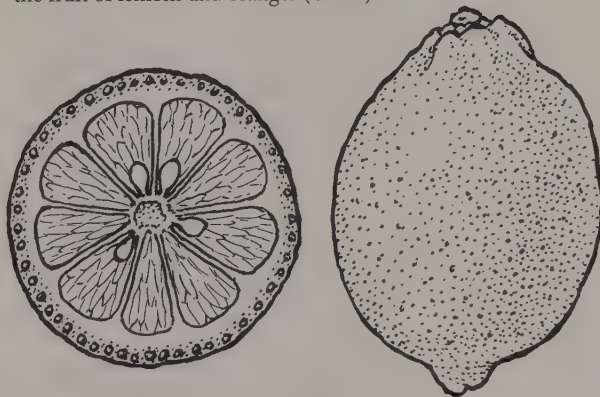
a natural history collection of dried or otherwise preserved plant specimens

hermaphrodite

plant with bisexual flowers

hesperidium

multilocular berry with leathery exocarp, locules separating as segments in fruit; e.g., the fruit of lemons and oranges (*Citrus*)



hemi-epiphyte

plant that grows attached to another plant, unrooted to the ground at one point in its life span but rooted to the ground at another; may start as an epiphyte and later become rooted, or start rooted and later become an epiphyte (less common)

herb

1. plant without above-ground woody growth; 2. plant used as a culinary seasoning, food, fragrance, or medicine

hetero-

prefix meaning different

heterogamous

having separate female and male flowers

ANTONYM *homogamous*

heterogonous

having two or more forms of bisexual flowers on separate individuals that differ in the ratio of the length of stamens to pistil

ANTONYM **homogonous**

heteromerous

having different numbers of parts, as in flowers with five petals and 10 stamens

heterophyllus

having different types of leaves on one individual

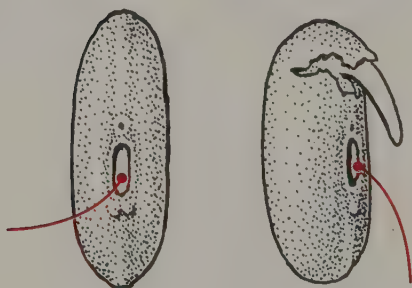
heterosporous

having two different kinds of spores, as is the case with all seed plants, certain aquatic ferns (e.g., *Azolla*, *Marselia*, and *Salvinia*), and two lycophytes (*Isoetes* and *Selaginella*)

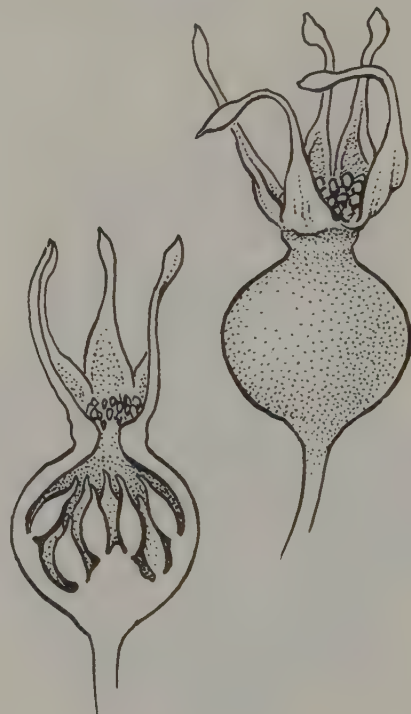
ANTONYM **homosporous**

hilum

scar left by the funicle on the seed coat

**hip**

false fruit consisting of a thickened and hardened hypanthium containing achenes, the fruit of roses (*Rosa*)

**hirsute**

having stiff, rough hairs

homo-

prefix meaning same

homogamous

1. having bisexual (perfect) flowers; 2. having female and male reproductive whorls maturing at the same time

ANTONYM 1. **heterogamous**; 2. **dichogamous**

homogonous

having only one form of bisexual flowers on different individuals and no difference in the ratio of the length of stamens to pistils

ANTONYM **heterogonous**

homosporous

having one kind of spore, as in some ferns (pteridophytes)

ANTONYM **heterosporous**

hood

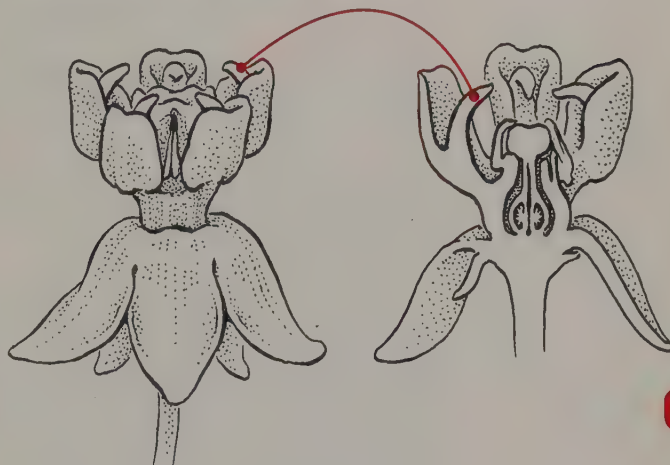
hood-shaped structure, especially that of the corona in milkweeds (*Asclepias*); see also **galea**

SYNONYM **cucullus**



horn

more or less basally cylindrical structure that curves and tapers to a point like a bull's horn



host

plant which another plant parasitizes, extracting nutrients

humus

decayed organic matter

husk

outer layer or layers of seeds or fruits (may correspond to all or parts of the pericarp or seed coat)

hook

narrow structure or extension that is abruptly curved at the tip

hybrid

plant produced via sexual reproduction involving two different species or varieties

hybrid swarm

hybrid plants that readily breed such that original parent plants cross with each other and with hybrids and hybrids cross with each other

hydrophilous

pollinated by water

hydrophyte

plant adapted to growing in water; see also
mesophyte, xerophyte

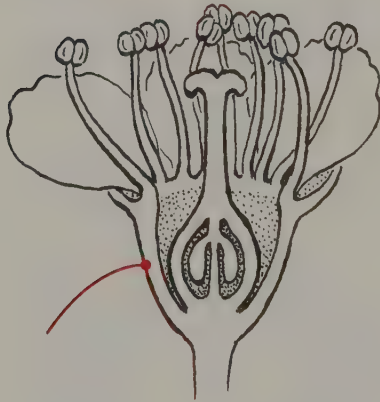
hygroscopic

readily absorbing moisture from the air

hypanthium

tubular structure surrounding and fused to
or free from the ovary, may be an expansion
of the receptacle and/or a fusion of various
components of the outer three floral whorls
(calyx, corolla, androecium)

SYNONYM floral cup

**hyphae**

"vegetative" strand (branching filament) of a
fungus

hypo-

prefix meaning low or beneath

hypocotyl

the region of an embryo or seedling below
the cotyledons

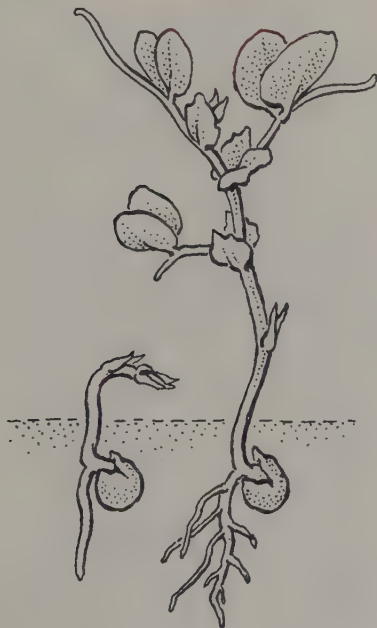
ANTONYM epicotyl



hypogeal, hypogeous

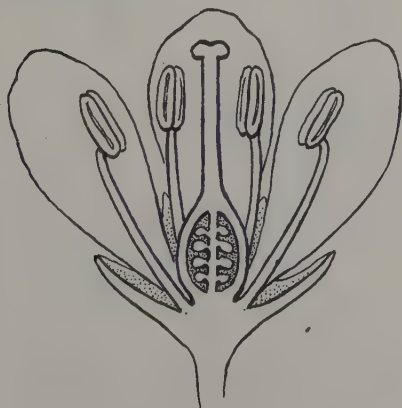
germination type in which the cotyledons remain below ground, where the seed was originally located, and do not become photosynthetic

ANTONYM **epigeal, epigeous**



hypogynous

flower with a superior ovary and no floral cup (hypanthium)



ICN

= International Code of Nomenclature for algae, fungi, and plants, dictates the rules for naming all naturally occurring plants (i.e., does not cover cultivars); formerly known as the ICBN (International Code of Botanical Nomenclature)

ICNCP

= International Code of Nomenclature for Cultivated Plants, dictates the rules for naming cultivated plants that are not covered by the ICN; covers cultivars and other human-selected or -bred plants

imbricate

having parts that overlap like roof shingles, commonly used in aestivation to refer to the arrangement of the petals in bud



immersed

submerged

imparipinnate

pinnately compound with an odd number of leaflets, terminating in a single leaflet; see also **even-pinnate**, **paripinnate**

SYNONYM **odd-pinnate**

**incised**

cut angularly, leaving jagged sections

**imperfect**

having only male (left) or female (right) functional reproductive parts

**included**

not protruding, as with flower parts within a corolla

ANTONYM **exserted**

incompatible

1. not capable of sexually reproducing together; 2. not capable of surviving being grafted together

ANTONYM **compatible**

incomplete

missing one or more floral whorls

incurved

curved inward toward the middle or axis

indehiscent

not opening, as with some fruit

ANTONYM **dehiscent**

indeterminate

1. inflorescence of flowers that mature from the bottom up or from the sides to the middle and which has the capacity for indefinite growth; 2. shoots for which elongating growth has the capacity to go on indefinitely

indigenous

originating from a particular geographical or geological area

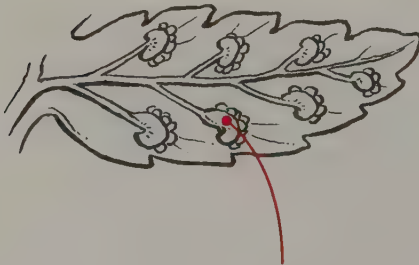
SYNONYM **native**

indumentum, indument

covering of hairs and/or scales on the epidermis of a plant

indusium

(plural indusia) a flap of tissue that covers a sorus on a fern frond

**inferior**

located below, as with an ovary located below the point of attachment of the outer three floral whorls (calyx, corolla, androecium)

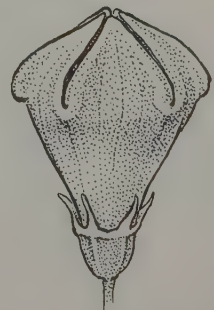
**infertile**

not capable of sexual reproduction

SYNONYM **sterile**

inflated

swollen, distended



inflorescence

branched or unbranched axis upon which flowers are arranged



infra-

prefix meaning below

infructescence

branched or unbranched axis upon which fruits are arranged



innovation

shoot that may eventually separate from the parent plant and continue to live; e.g., the plantlet produced at the end of a stolon

inosculation

fusing together of woody stems where they come in contact with each other; this can happen within one individual or between two or more individuals

inrolled

rolled upward toward the upper (adaxial) surface

SYNONYM *involute*

ANTONYM *revolute*

insectivorous

insect-eating

SYNONYM *entomophagous*

inserted

fused to or emerging from another structure

in situ

in a natural environment, in the "wild"

integument

tissue surrounding the ovule that becomes the seed coat as the ovule develops into the seed

inter-

prefix meaning between

interfertile

said of two or more taxa that may successfully sexually reproduce with each other

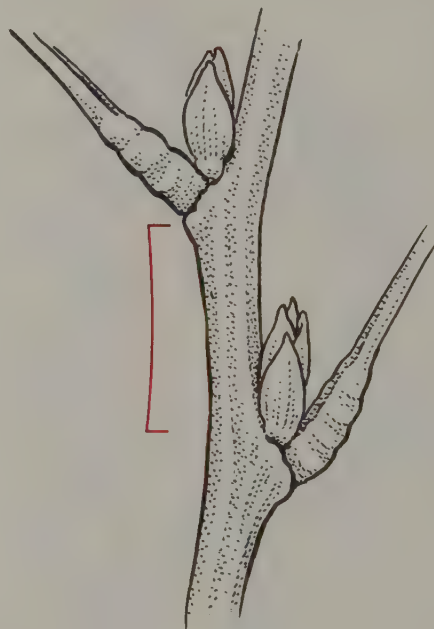
intergeneric hybrid

offspring produced by the crossing of different genera, as is the case with many orchid hybrids

internode

area of stem occurring between the two nearest locations of leaf attachment (nodes)

ANTONYM *node*

**interpetiolar**

between petioles

interrupted

discontinuous in structure or content

interspecific hybrid

offspring produced by the crossing of different species

intra-

prefix meaning within

intrastaminal

borne between the stamens and the gynoecium or center of the flower

introduced

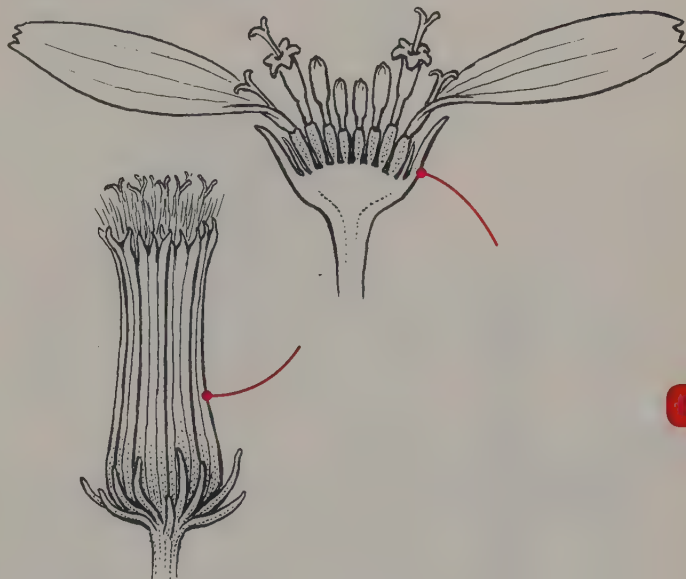
non-native plant intentionally or unintentionally brought into an area; e.g., aquatic plants released into new areas in ballast water

introrse

facing or opening inward toward the center, as with anthers in a flower

**involucre**

bracts subtending a flower or a collection of flowers, as with the inflorescences of the sunflower family (Asteraceae)

**involute**

rolled upward toward the upper (adaxial) surface

SYNONYM **inrolled**

ANTONYM **revolute**

**invasive**

non-native plant that is reproducing on its own and interfering with the normal functions and/or composition of an ecosystem

inverted

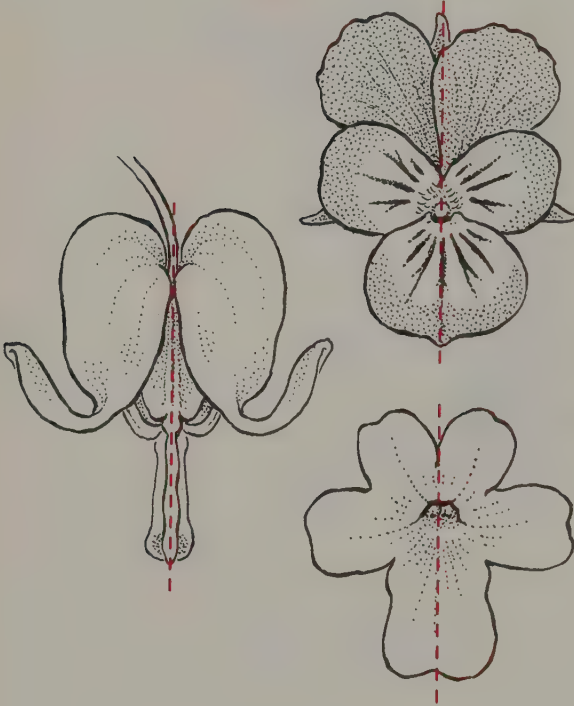
occurring in an orientation opposite to what is normal

irregular

having a single plane of symmetry such that only one line drawn through the middle produces two mirror-image halves

SYNONYM bilaterally symmetrical, zygomorphic

ANTONYM actinomorphic, radially symmetrical, regular



isolation

state of separation, whether temporal or spatial, to keep plants from breeding

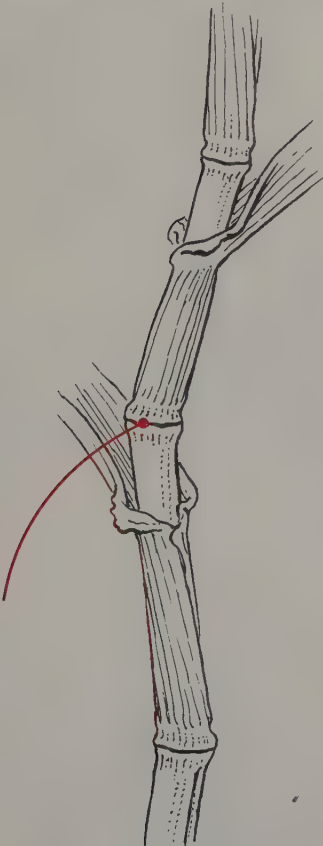
isomerous

having an equal number of parts in the floral whorls

J

joint

1. articulation; 2. node, especially in grasses (Poaceae)



jointed

having nodes that are or appear to be articulated

jugate

having parts in pairs



juvenile

plant not yet capable of sexual reproduction, usually smaller in size than adults

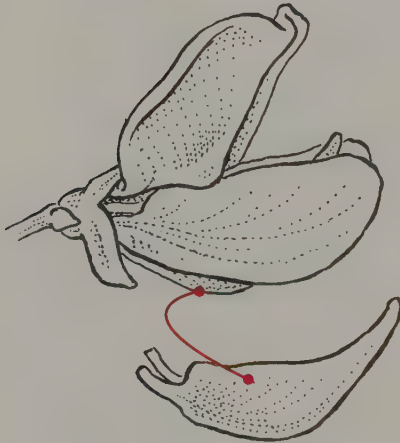
K

karyotype

the number, size, and shape of an individual's chromosomes

keel

1. lower central, partially fused two petals in flowers of the bean family (Fabaceae); 2. ridge emerging from a rounded surface



keiki

plantlet produced by an orchid, usually on a long pseudobulbous stem, at the base of a pseudobulb, or on an old inflorescence

key

plant identification tool that allows the reader to select characteristics by which to determine the identity of plants; types include dichotomous, polytomous, multi-entry, and multi-access

knee

1. emergent vertically growing roots of bald cypress (*Taxodium distichum*); 2. bent roots or pneumatophores of mangroves (*Avicennia*, *Rhizophora*)

L

labelliform

shaped like a lip

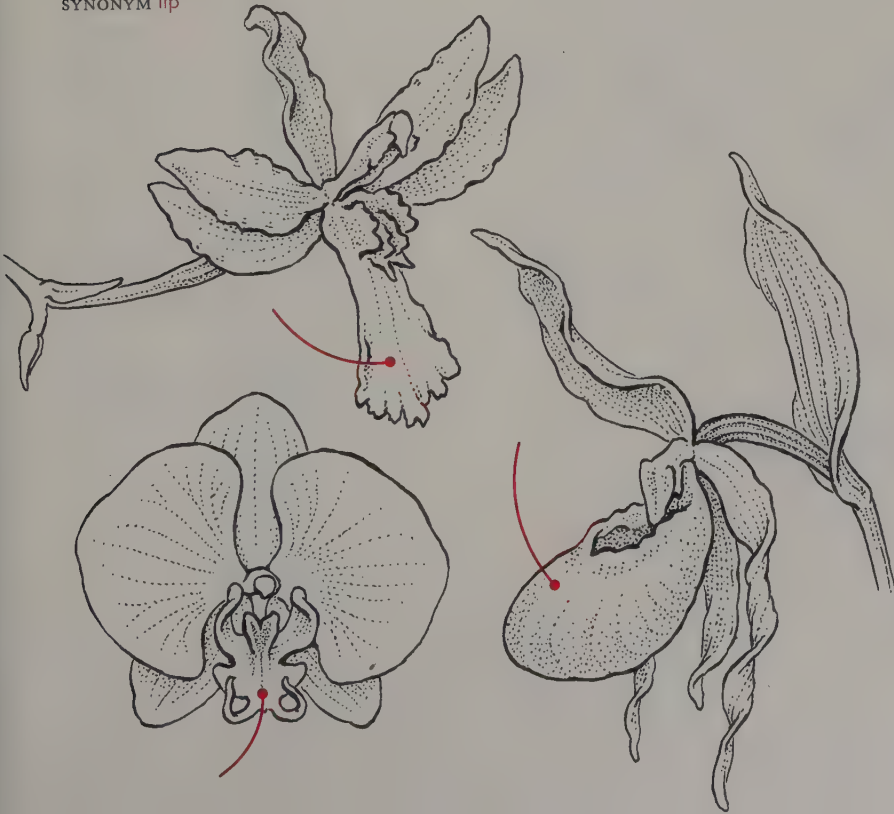
labellum

central, usually lowest and largest petal of an orchid, may be cup-like

SYNONYM lip

labiate

lip-like or having lips, as with the flowers of the mint family (Lamiaceae)



labium

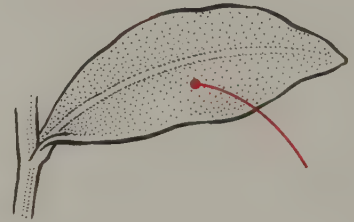
(plural labia) lower prominent petal segment of a bilabiate flower, as in the mint family (Lamiaceae)

SYNONYM *lip*

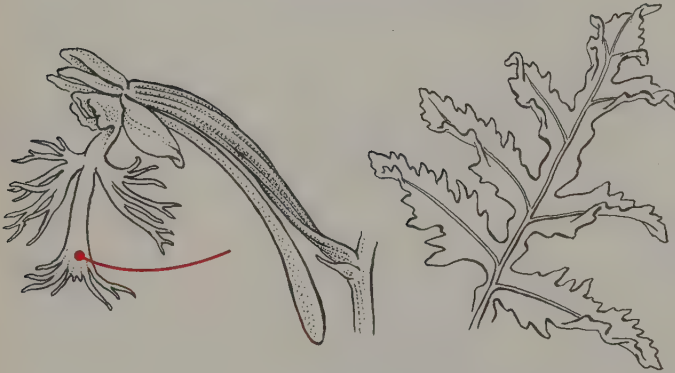
**lamina**

the usually broad and flattened part of a leaf or petal

SYNONYM *blade*

**lacerate**

irregularly lobed, appearing torn

**lanceolate**

lance- or sword-shaped with the widest point toward the base

SYNONYM *ensiform, gladiate*

**laciniate**

deeply lobed into narrow sections

lactiferous, laticiferous

having milky latex

lateral

on or at the side, as with the leaflets below the terminal leaflet on a pinnately compound leaf

**lax**

loose, not congested

layering

propagation technique that triggers root production on stems that are still attached to their parent plant; done via several techniques such as putting lower branches partially underground (one to many times, alternating with above-ground sections), or by cutting into stem bark and sealing sphagnum moss or another sterile substrate around the stem at the cut site; the rooted stems are then cut from the plant and resulting new plants are clones of the parent plant

leader

the dominant stem of a tree, the main trunk

latex

milky sap

latitudinal

perpendicular to the main axis

SYNONYM *transverse*

latrorse

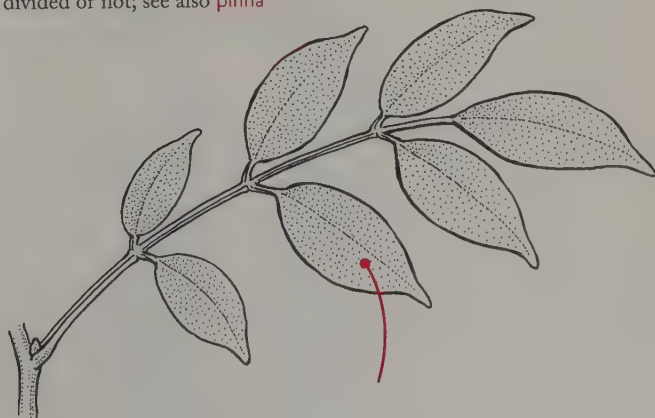
opening longitudinally on the side, in reference to anther dehiscence

**leaf**

primary photosynthetic organ of most plants, usually attached to a stem

leaflet

segment of a compound leaf, may be further divided or not; see also *pinna*

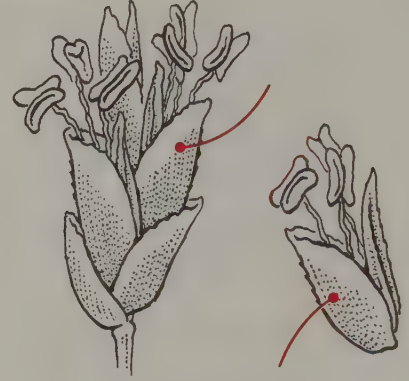


leaf scar

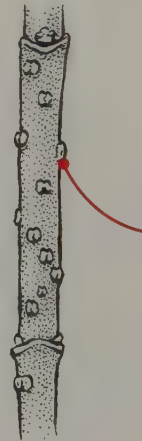
mark left on the stem from where the leaf was attached, contains bundle scars

**lemma**

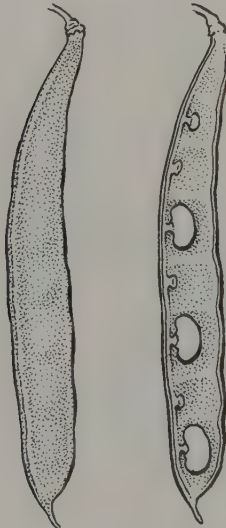
the lower/outer of two bracts subtending a grass (Poaceae) floret, the other being the palea

**lenticel**

raised linear to circular corky marking on stems that allows for gas exchange

**legume**

1. dry, dehiscent unilocular fruit opening along two lines of suture, derived from a unicarpellate pistil; 2. vernacular name for any plant in the bean family (Fabaceae); the name comes from the old, and still accepted, name for the family, Leguminosae

**lenticular**

shaped like a lentil, i.e., round and convex on both sides

SYNONYM **biconvex**

lepidote

covered in small scales

liana

woody vine

ligneous, lignified

woody

ligulate

1. strap- or tongue-shaped; 2. having a ligule

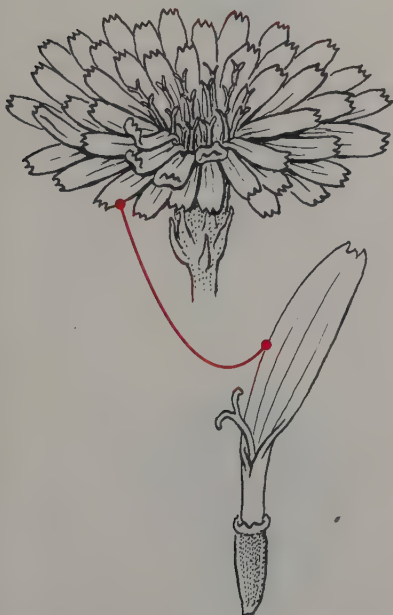
SYNONYM 1. *lingulate*

ligulate flower

flower with an elongated fused corolla on one side, found in sunflower family (Asteraceae) inflorescences, together they form what look like the petals of these “false flower” inflorescences

SYNONYM *ray flower*

ANTONYM *disk flower*

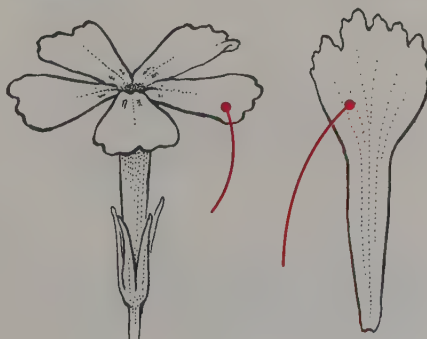
**ligule**

strap- or tongue-shaped structure; e.g., the projection at the top of the sheathing part of a grass (Poaceae) leaf by the base of the free blade, or the elongated fused corolla lobes in sunflower family (Asteraceae) ray flowers

SYNONYM *ray*

**limb**

expanded flat portion of a petal, leaf, or fused corolla



linear

narrow and long with parallel sides

**lobe**

a rounded segment of something, as in a leaf or calyx

**lingulate**

strap- or tongue-shaped

SYNONYM **ligulate**

lip

1. central, usually lowest and largest petal of an orchid, may be cup-like; 2. lower prominent petal segment of a bilabiate flower, as in the mint family (Lamiaceae)

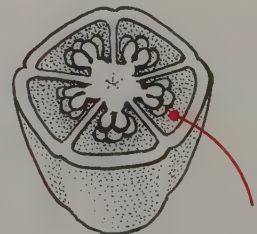
SYNONYM 1. **labellum**; 2. **labium**

**lobed**

having lobes, as in a leaf or stigma

**locule, loculus**

chamber within an ovary, anther, sporangium, or fruit; in ovary and fruit, usually corresponding to a carpel

**lithophyte**

a plant that grows attached to a rock

loculicidal

fruit opening to release seeds at the wall of the chamber; see also *circumscissile*, *poricidal*, *septicidal*



long-day plant

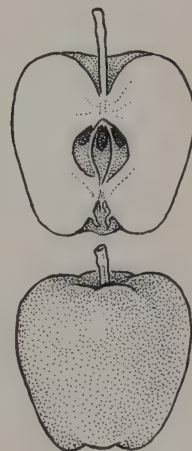
plant that requires more than 12 hours of light per day to grow and reproduce
ANTONYM *short-day plant*

longitudinal section

cut along the main axis, abbreviated as l.s.
ANTONYM *cross section*

l.s.

longitudinal section
ANTONYM *x.s.*, *cross section*



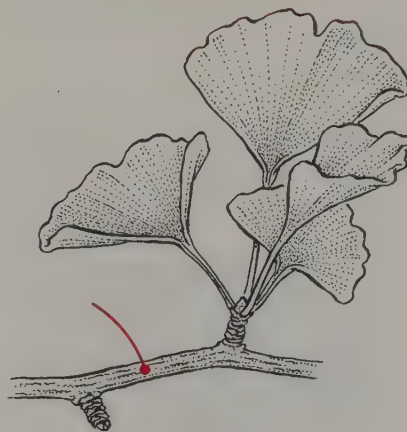
lodicules

two very small, usually flat structures subtending the flower inside of the lemma in grass (Poaceae) florets; presumably, these are the remnant perianth



long shoot

stem with well-spaced nodes separated by long internodes, constitutes the majority of stems
ANTONYM *brachyblast*, *short shoot*, *spur*



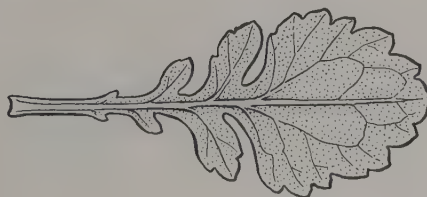
loment, lomentum

elongate fruit that is constricted and fused between the seeds and dehisces into corresponding one-seeded sections, derived from a unicarpellate pistil; fruit of some species in the bean family (Fabaceae)



lyrate

pinnatifid with the terminal lobe rounded and much larger than subtending lobes



M

macro-

prefix meaning large

macrophyll

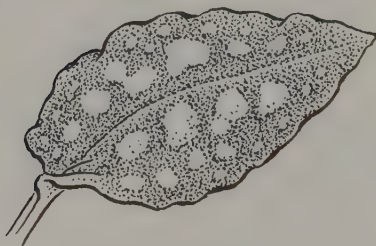
leaves with multiple branched veins, such as those of oaks (*Quercus*) and ginkgos (*Ginkgo*)

SYNONYM megaphyll

ANTONYM microphyll

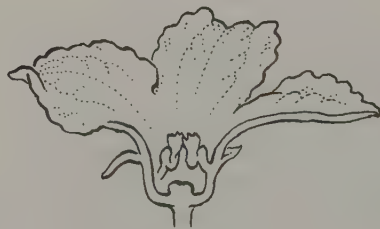
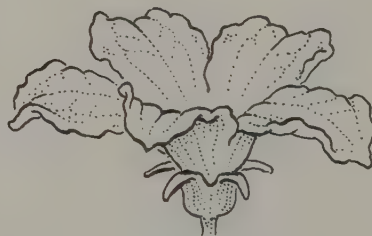
maculate

marked with splotches or dots



male flower

flower bearing fertile male structures (stamens) and no, or only infertile, female structures (pistils)



male sporophyll

male reproductive structure bearing pollen; e.g., the scales on male cones of pines (*Pinus*); see also stamen

marcescent

in reference to petals, sepals, and leaves, remaining attached although withered, as in the leaves of some beech trees (*Fagus*) and succulents

**mast**

edible fruits of forest trees, such as beechnuts (*Fagus*) and acorns (*Quercus*); most commonly used in the phrase “mast year” to indicate a year in which these fruits are produced in particularly large amounts

mat-forming

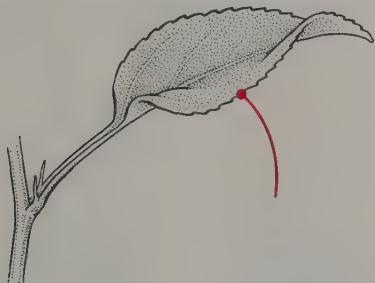
plant growth that results in a dense ground-covering

maturity

point at which an organ is fully developed, such as a ripe fruit or a fully open and functioning flower

margin

edge, as of leaves, petals, and sepals

**medial, median**

of or in the middle

medifixed

attached at the middle, as with filaments attached to the middle of anthers; see also

basifixed, dorsifixed

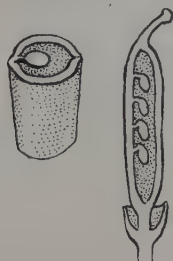
SYNONYM **versatile**

marginal

at, attached to, or near the edge

marginal placentation

ovules attached to the ovary wall in a simple pistil, such as in legumes (*Fabaceae*)

**mega-**

prefix meaning large

megaphyll

leaves with multiple branched veins, such as those of oaks (*Quercus*) and ginkgos (*Ginkgo*)

SYNONYM **macrophyll**

ANTONYM **microphyll**

megasporangium

structure that bears female spores (megaspores)

megaspore

the larger, female spores found in heterosporous plants, which include all seed plants, certain aquatic ferns (e.g., *Azolla*, *Marselia*, and *Salvinia*), and two lycophytes (*Isoetes* and *Selaginella*)

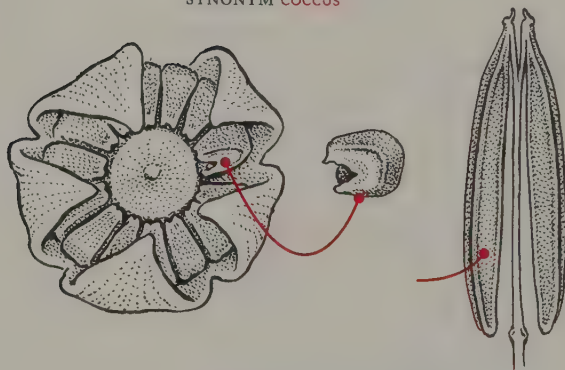
membranous, membranaceous

very thin, nearly transparent

mericarp

individual section of a schizocarp, derived from a single carpel in a syncarpous pistil; e.g., members of the mallow (Malvaceae) and carrot (Apiaceae) families

SYNONYM **COCCUS**

**meristem**

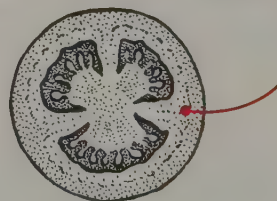
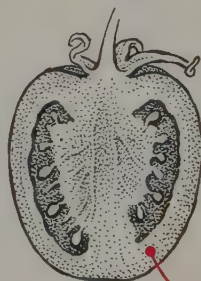
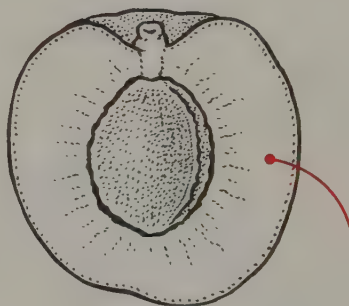
location of cell production that is responsible for the overall growth in height, length, and width of plants, located at the tips of branches and roots as well as just inside the bark

-merous

suffix meaning number of parts or sets, usually applied to floral whorls

mesocarp

middle layer of the fruit wall (pericarp); e.g., the flesh of a peach (*Prunus persica*)



mesophyte

plant adapted to growing with average water availability; see also **hydrophyte**, **xerophyte**

microphyll

leaves with a single, usually unbranched vein, such as in horsetails (*Equisetaceae*) and spikemosses (*Selaginellaceae*)

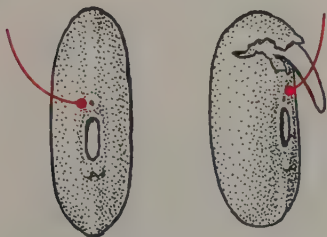
ANTONYM **macrophyll**, **megaphyll**

microporangium

structure that bears male spores (microspores)

micropyle

opening between the integuments through which the pollen tube grows, visible on some seeds



microspore

the smaller, male spores found in heterosporous plants, which include all seed plants, certain aquatic ferns (e.g., *Azolla*, *Marselia*, and *Salvinia*), and two lycophytes (*Isoetes* and *Selaginella*)

midrib, midvein

central (primary) vein of leaves, usually more prominent than the lateral (secondary) veins

monadelphous

stamens fused together by their filaments into one mass (often a column)



monandrous

having one stamen

mono-

prefix meaning one

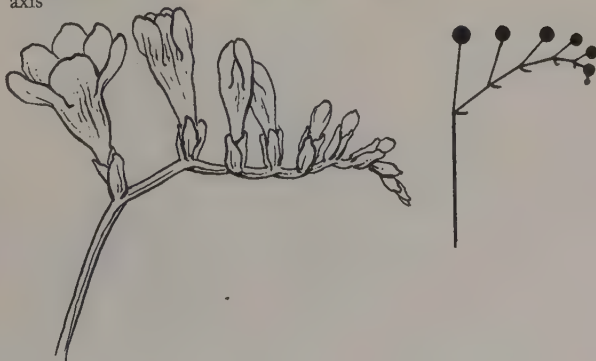
monocarpic

flowering and fruiting only one time, then dying; e.g., century plant (*Agave americana*)

ANTONYM **polycarpic**

monochasium

cymose inflorescence with one single flower (simple) or multiple branching units (compound) produced on one side of a main axis



monocot

shortened name (from monocotyledon) for the group of plants that usually have one seed leaf (cotyledon), flower parts in multiples of three, and parallel-veined leaves

ANTONYM **dicot**

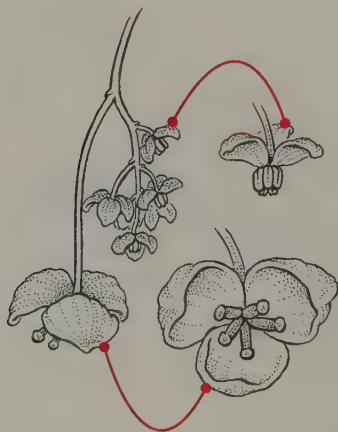
monocotyledonous

having one seed leaf (cotyledon)

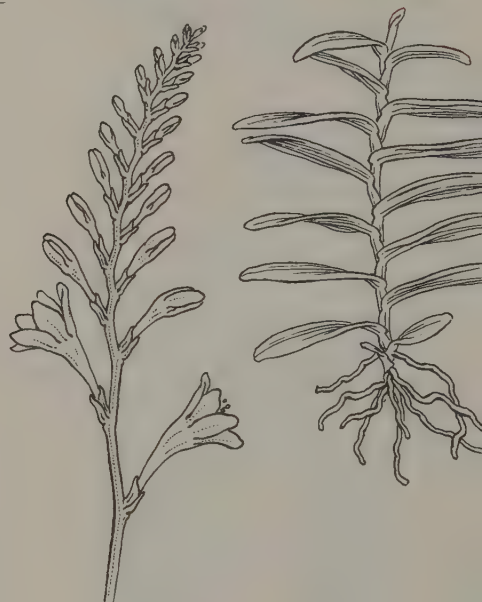
**monoecious**

having unisexual flowers of both sexes borne on the same individual; illustrated in detail here are smaller male (staminate) flowers and a large female (pistillate) flower

ANTONYM **dioecious**

**monopodial**

having a single axis of growth with lateral branching occurring on either side of the main axis, most commonly used to describe the growth of inflorescences but also to describe vegetative growth, such as in some orchids (Orchidaceae); see also **sympodial**

**monotypic**

having one type; e.g., a genus with only one species or a family with only one genus

montane

living in the mountains

moss

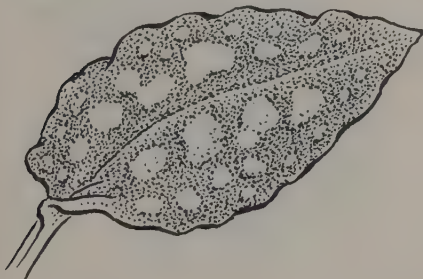
non-vascular land plant in the division Bryophyta, often found in wet areas on the surface of soils, rocks, or tree trunks

**motile**

capable of movement; e.g., bryophyte and fern sperm

mottled

marked with splotches or dots of a different color

**mouth**

the opening of a tubular structure, such as a fused corolla

**mucilage**

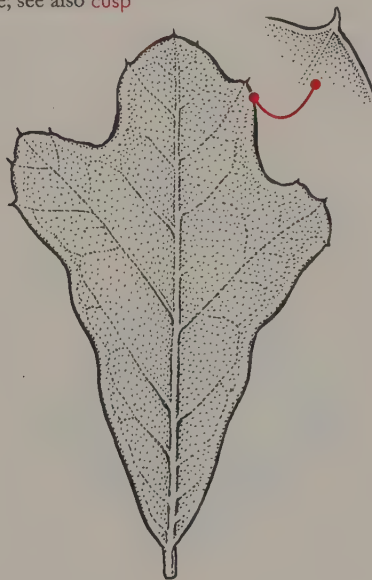
thick, slimy, or gelatinous substance inside plants; e.g., the sap of *Aloe vera*

mucilaginous

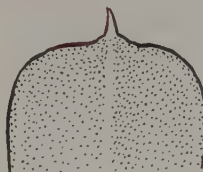
slimy

mucro

a short, stiff, sharp point, as on a leaf apex or lobe; see also *cuspid*

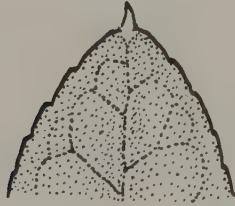
**mucronate**

coming to an abrupt, short, stiff, sharp point
SYNONYM *cuspidate*



mucronulate

coming to an abrupt, very short, stiff, sharp point

**multi-**

prefix meaning many

multicarpellate

having many carpels

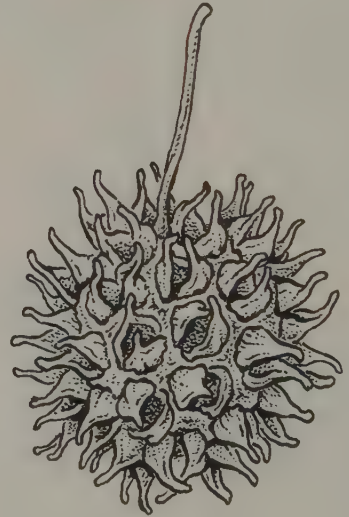
**multilocular**

having many locules

**multiple infructescence**

fruit derived from an entire inflorescence, may be fleshy or dry; e.g., sweetgum (*Liquidambar styraciflua*)

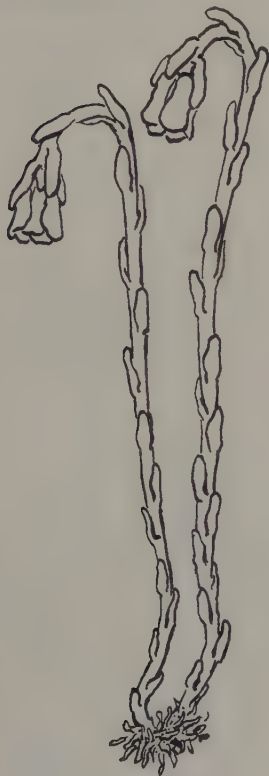
SYNONYM *syncarp*

**mutualism**

a relationship in which two organisms live fused together or in very close proximity (symbiosis) and both benefit from the connection

mycoheterotroph

plant that derives nutrients from fungi; all plants previously thought of as saprophytic are actually mycotrophic and derive nutrients from green plant associates of the fungi on which they are parasites; e.g., Indian pipe (*Monotropa uniflora*)



myrmecophyte

a plant that has a mutualistic relationship with ants

SYNONYM ant-plant

mycorrhiza

(plural mycorrhizae) fungus growing attached to a plant's roots and forming a symbiotic relationship with the plant; the fungus expands the plant's root system and delivers water and nutrients to the plant in exchange for sugars

N

naked

lacking a structure or structures normally present, such as a tree lacking leaves

nascent

beginning to develop, showing potential; as with introduced species with potential to become invasive

native

originating from a particular geographical or geological area

SYNONYM *indigenous*

naturalized, naturalised

established and reproducing non-native species; more established than adventive species

nectar

sticky, sugary fluid produced in various organs, such as flowers and leaves, as a reward/attractant, usually for pollinators but sometimes for insects, such as ants, that are associated with the plant

nectar guides

indicating markings (lines, spots, blotches) that direct pollinators to flower nectaries, may be invisible to human eyes except under ultraviolet (UV) light



nectariferous

producing nectar

nectary

nectar-producing organ, gland, or tissue



neotropics

the tropical areas of the Americas

nerve

vascular tissue in leaves or leaf-like structures such as bracts, petals, sepals, and stipules, may be branching or not

SYNONYM **vein**

net-veined, netted

having branched veins that connect to form an intricate pattern

SYNONYM **reticulate**

nitrogen

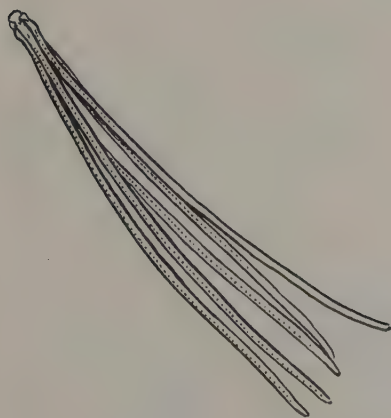
essential plant nutrient, abbreviated as N, the first number in fertilizer content

nitrogen fixation

process of conversion of atmospheric nitrogen into a form that can be absorbed by plants; often accomplished by bacteria (many of which were formerly known as blue-green algae) that live in a mutualistic relationship with plants such as legumes (Fabaceae)

needle

long, very narrow leaf; leaves of many gymnosperms



nocturnal

occurring or active at night, as with the flowering of moonflower (*Ipomoea alba*) and many cacti

nodding

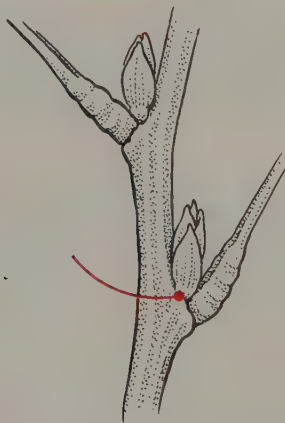
hanging or bent downward, applied most often to flowers

SYNONYM **cernuous**

**node**

area of leaf attachment on the stem, may have a leaf, leaf scar, or branch

ANTONYM **internode**

**nodule**

rounded knob, as with those on the roots of many legumes (Fabaceae); see also **root nodule**

nuciferous

producing nuts

numerous

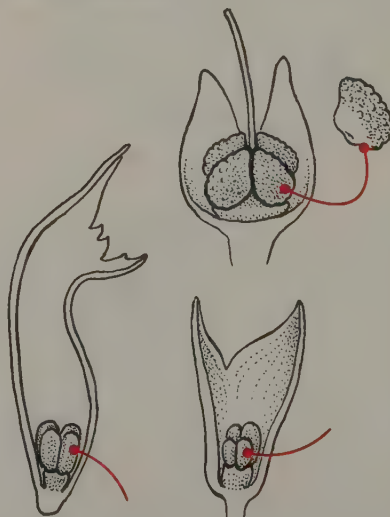
greater than 10, often used to describe floral parts; e.g., "stamens numerous"

nut

dry, indehiscent, unilocular fruit usually with one seed and a hard pericarp; e.g., the acorns of oaks (*Quercus*)

**nutlet**

1. small nut, as found in members of the mint (Lamiaceae) and borage (Boraginaceae) families; 2. another term for the achene fruit of sedges (Cyperaceae)



ob-

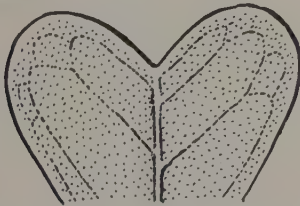
prefix meaning inverse

obconic, obconical

shaped like a cone, attached at the pointed end

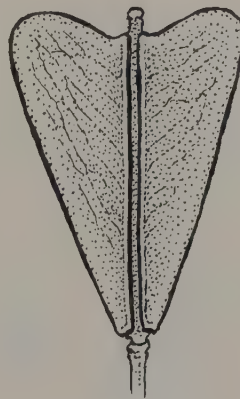
obcordate

1. heart-shaped with the widest point at the top; 2. leaf apex with two rounded sides separated by a broad indentation, like the top of a heart



obdeltoid

equilateral triangle-shaped with one of the flat sides on the top and attached at the opposite point



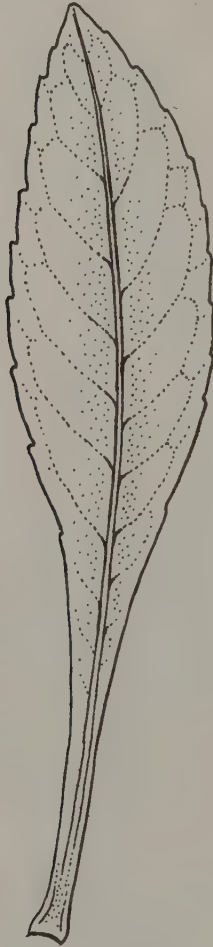
obdiplostemonous

having two distinct sets of stamens, the outer whorl opposite the petals and the inner whorl opposite the sepals

ANTONYM **diplostemonous**

oblanceolate

lance-shaped with the widest point toward the top



obligate

dependent on certain conditions, such as the presence of another organism for some parasites

oblique

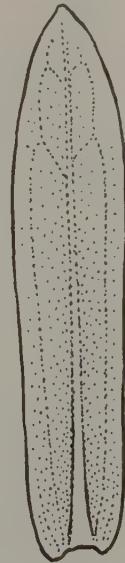
having two halves or sides that are unequal in size and/or shape, usually applied to leaf bases

SYNONYM asymmetrical



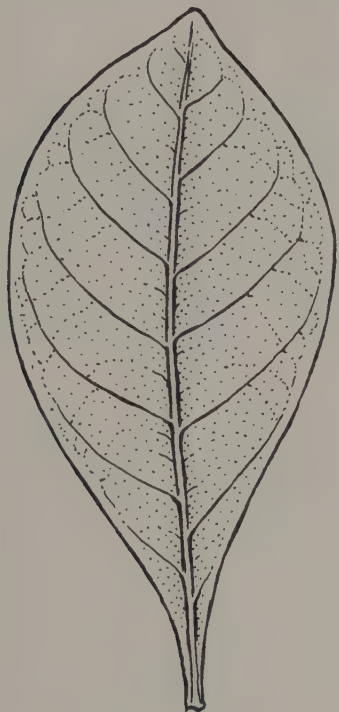
oblong

at least one and a half times as long as wide with parallel sides

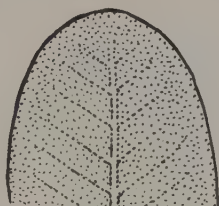


obovate

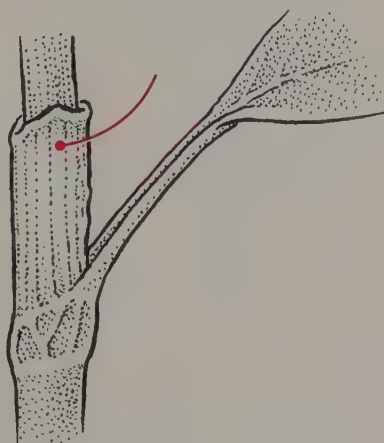
egg-shaped with the broadest point at the top

**obtuse**

rounded apex or base with curved sides forming a $>90^\circ$ but $<180^\circ$ angle

**ocrea**

(plural ocreae) stipules fused together into a sheath around the stem, as in many members of the buckwheat family (Polygonaceae)

**obovoid**

three-dimensionally egg-shaped, broadest at the apex

obsolete

underdeveloped, reduced in size and not functional; e.g., non-functional, reduced stamen (staminode) in a flower
SYNONYM rudimentary, vestigial

octo-

prefix meaning eight

odd-pinnate

pinnately compound with an odd number of leaflets, terminating in a single leaflet; see also **even-pinnate**, **paripinnate**

**offset**

shoot growing from the base of a main trunk or stem, usually horizontal and useful in propagation

**offshoot**

shoot growing off of a main trunk or stem

oligo-

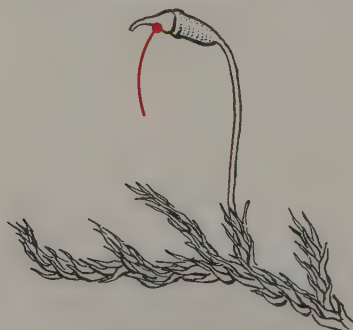
prefix meaning few

open pollination

process of the free transfer of pollen from one plant to another via insect, bird, wind, water, or other natural mechanism; see also **chasmogamous**

operculum

(plural opercula) small lid, as on a moss capsule or eucalyptus flower



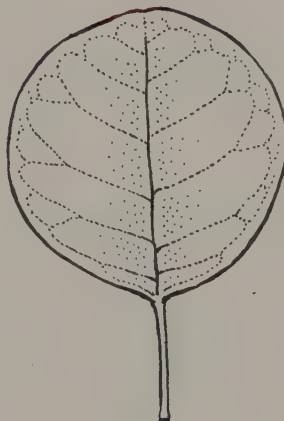
opposite

occurring across from each other, as with leaves paired two per node on a stem and stamens aligned with petals in a flower

**orbicular**

round

SYNONYM *circular*

**order**

taxonomic rank above family and below class; plant order names end in "-ales"

organ

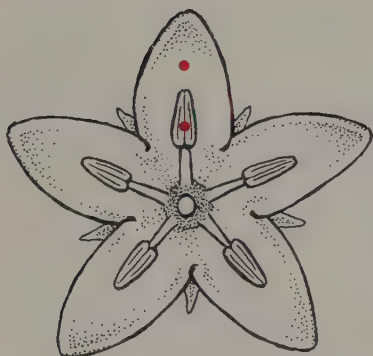
refers to external functional structures, such as roots, stems, leaves, flowers, and fruits

ornamental

plant cultivated for its appearance

ornithophilous

pollinated by birds

**ortet**

original parent plant from which propagules arose that grew additional, genetically identical (clonal) plants

ortho-

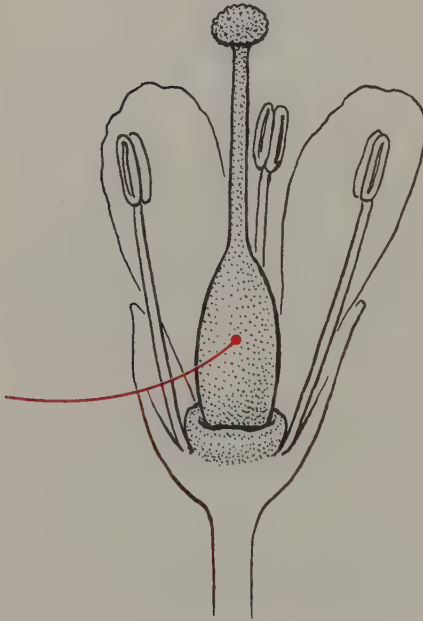
prefix meaning straight

outcross

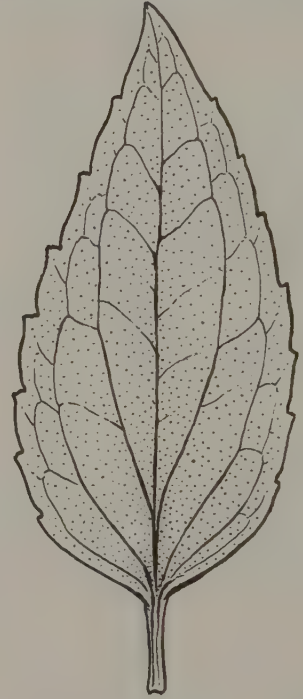
selectively transfer pollen produced by one plant to the stigma of another

ovary

ovule-bearing section of a pistil, forms the fruit wall

**ovate**

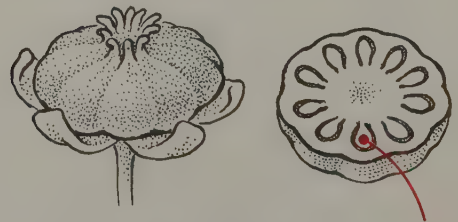
egg-shaped, broadest at the base

**ovoid**

three-dimensionally egg-shaped, broadest at the base

ovule

megasporangium, contains an egg cell and becomes the seed, located inside the ovary



P

pachy-

prefix meaning thick

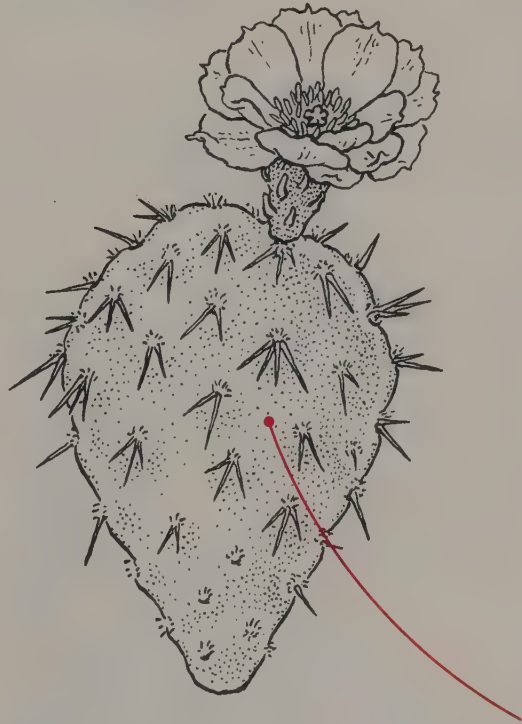
pachycaul

thick-trunked with few to no branches, usually applied to baobabs (*Adansonia*) and other plants with bottle-shaped trunks



pad

segment of a cactus stem, may be used in vegetative propagation



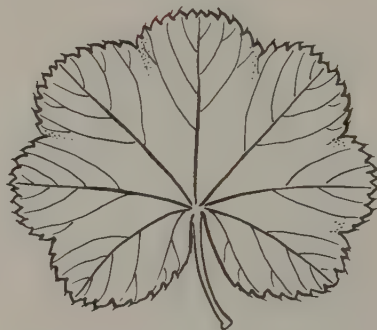
palate

projecting part on the lower lip of a bilabiate corolla; e.g., the bulging central portion that nearly closes the throat of a snapdragons (*Antirrhinum*)

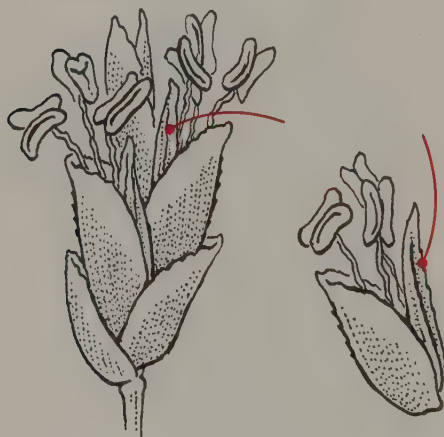
**palmate**

having veins, lobes, leaflets, or dissections all arising from a single point, usually at the top of the petiole, like fingers from a palm

SYNONYM **digitate**

**palea**

the upper/inner of two bracts subtending a floret in the grass family (Poaceae), the other being the lemma

**palmately compound**

compound leaf with dissections all arising from a single point, usually at the top of the petiole, like fingers from a palm

**paleotropics**

the tropical areas of Africa, Asia, and the Pacific, excluding Australia and New Zealand

palmately lobed, palmatifid

having lobes all arising from a single area on the blade, like fingers from a palm

**panicle**

inflorescence with pedicellate flowers borne on branches arising from an elongated central axis

**palmatisect**

very deeply palmately lobed

**pantropical**

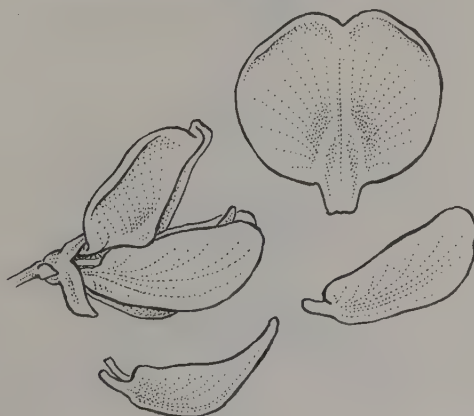
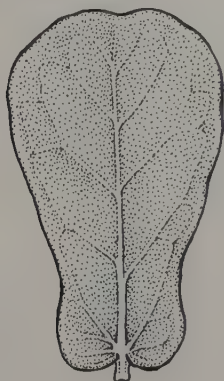
occurring in all tropical regions of the world

papilionaceous

butterfly-shaped, usually in reference to flowers characterized by having a large upper banner petal, two lateral wing petals, and two petals fused to form a single lower central keel; typical of papilionoid legumes (Fabaceae subfamily Papilionoideae)

pandurate

shaped like a fiddle, i.e., with rounded ends and a contracted center



papilla

(plural papillae) short, rounded, nipple-like protuberance

papillate

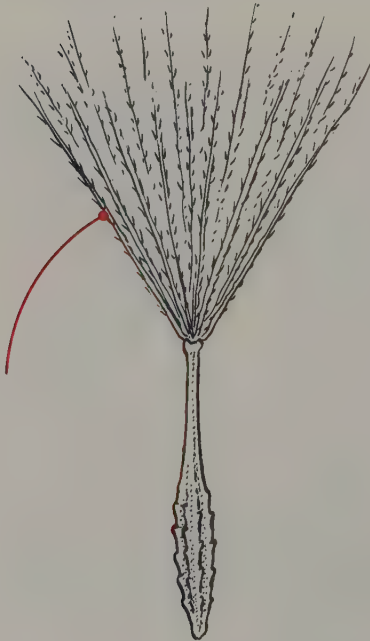
having papillae

papillose

having small papillae

pappus

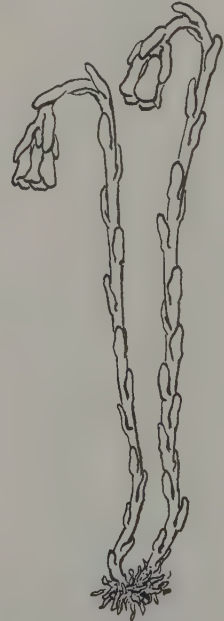
1. modified calyx of the sunflower family (Asteraceae) that may consist of very short to long modified sepals in the form of bristles, awns, or scales, and that sometimes facilitates wind dispersal; 2. dense cluster of hairs attached to the end of a milkweed (*Asclepias*) seed that facilitates wind dispersal, more correctly called a coma

**parallel-veined**

having veins that run more or less side by side the length of the leaf

**parasite**

organism that is attached to and draws water and/or nutrients from another organism (the host), may be partially or fully dependent on the host; e.g., Indian pipe (*Monotropa uniflora*)



parastichy

spiral formed by tracing the points of attachment of organs on an axis, such as leaves along a stem or scales along the central axis of a cone

parthenocarpy

fruit production without fertilization or seed development

parthenogenesis

seed production without fertilization

parietal placentation

ovules attached to the ovary wall in a usually unilocular compound pistil (multicarpellate ovary)



patent

spreading outward, as with petals from the floral axis or lower branches from a tree trunk

pectinate

resembling a comb in having narrow, closely spaced segments



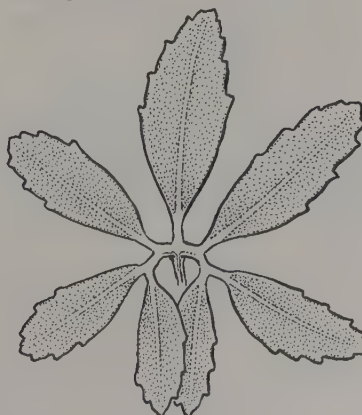
paripinnate

pinnately compound with an even number of leaflets, terminating in a pair of leaflets; see also *imparipinnate*, *odd-pinnate*
SYNONYM *even-pinnate*



pedate

palmately divided leaf with the lower leaflets further split in two



pedately lobed

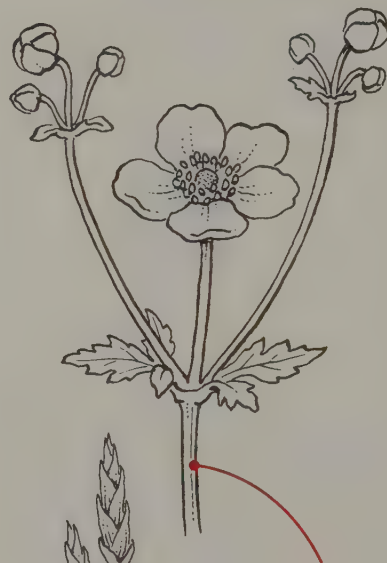
deeply palmately lobed leaf with the lower lobes further split in two

**pedicellate**

having a stalk, applied to flowers

peduncle

the stalk of a solitary flower or an entire inflorescence

**pedicel**

the stalk of an individual flower within an inflorescence



pellucid

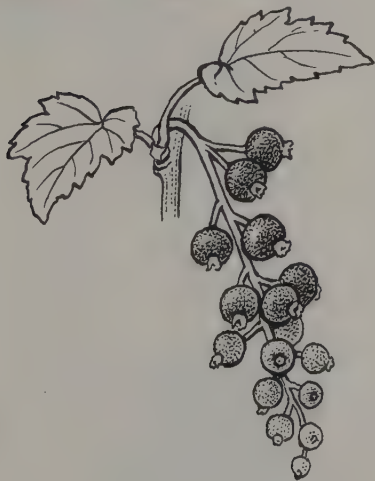
translucent or transparent; e.g., gland dots in leaves and fruit exocarp of lemons and oranges (*Citrus*)

peltate

having a centrally attached stalk or petiole like an umbrella; e.g., the leaves of water lotuses (*Nelumbo*)

**pendent, pendulous**

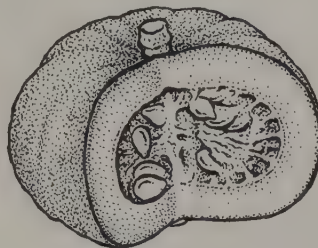
hanging or bending downward

**penta-**

prefix meaning five

pepo

unilocular berry with hard exocarp, characteristic of the gourd family (*Cucurbitaceae*)

**perennial**

living and reproducing for more than two years, i.e., sets seed multiple times over its life

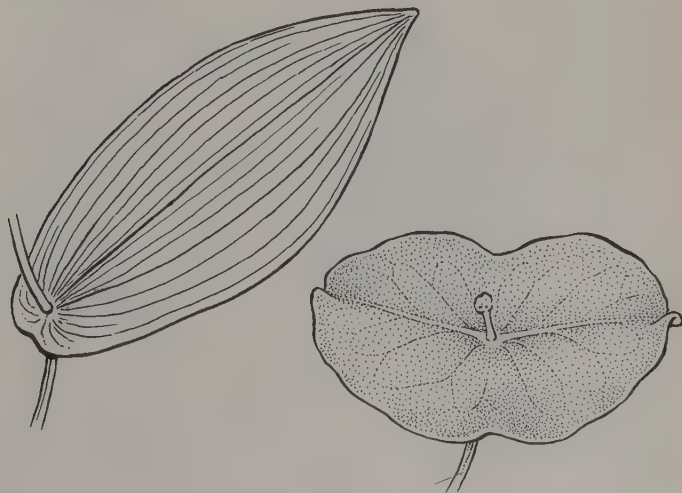
SYNONYM **polycarpic**

perfect

flowers that have functioning female and male reproductive parts

perfoliate

leaf, stipule, or bract base fused, so as to appear to be pierced by the stem



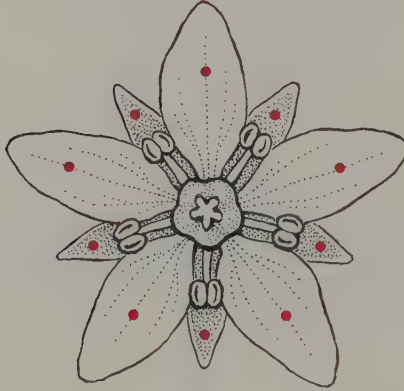
peri-

prefix meaning about or surrounding

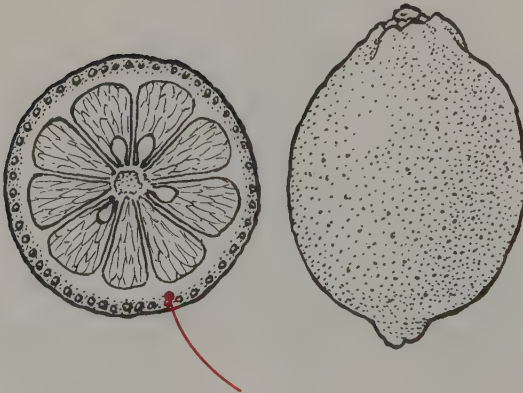
perianth

collective term for calyx (sepals) and corolla (petals)

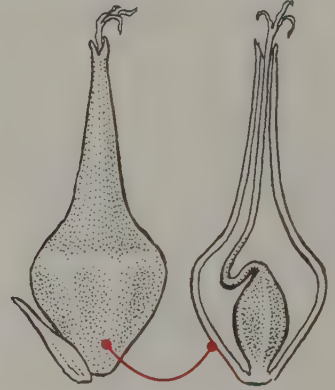
SYNONYM floral envelope

**pericarp**

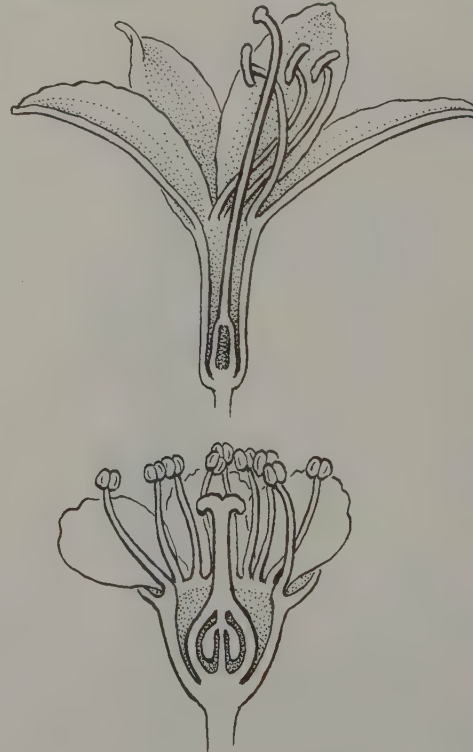
fruit wall, derived from the ovary wall and consisting of up to three layers: exocarp, mesocarp, and endocarp

**perigynium**

(plural perigynia) covering surrounding the pistil in sedges (*Carex*), often hard

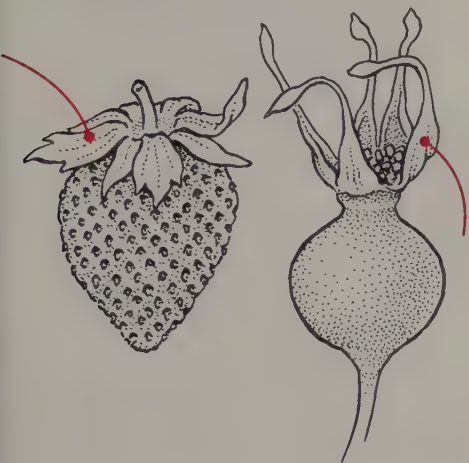
**perigynous**

flower with a superior ovary and a floral cup (hypanthium)



persistent

remaining attached beyond what is normal for that type of structure, as with the calyx in strawberries (*Fragaria*) or rose hips (*Rosa*)



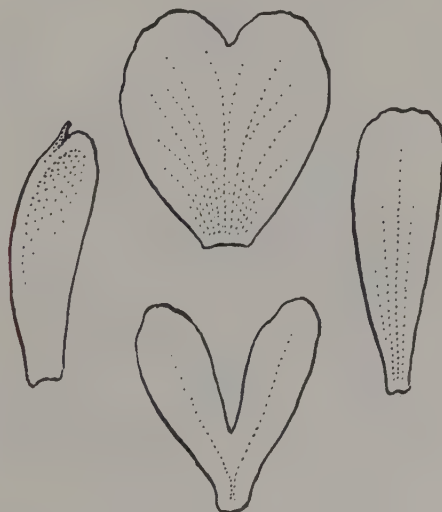
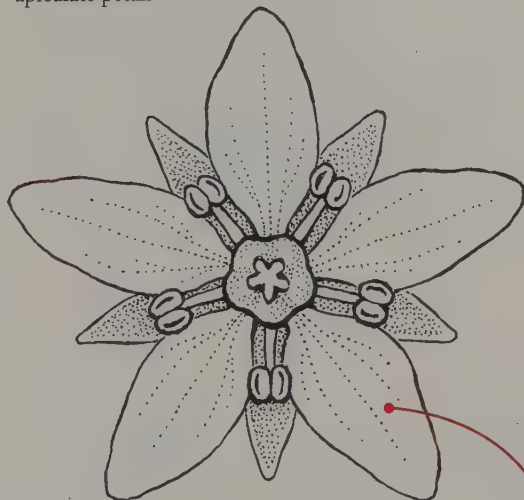
personate

with two lips (as of a bilabiate corolla) that stay nearly fully closed, requiring pollinators to push their way in



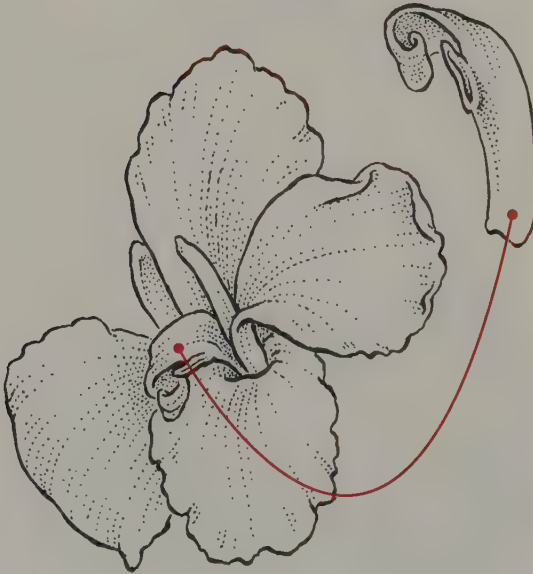
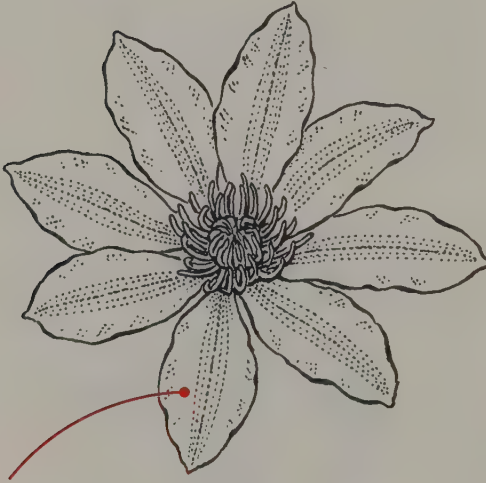
petal

individual component of the second whorl of the flower (the corolla), which is usually colorful and functions to attract pollinators and facilitate pollination; variously shaped; illustrated in detail below (clockwise from top) are obcordate, spatulate, bifid, and apiculate petals

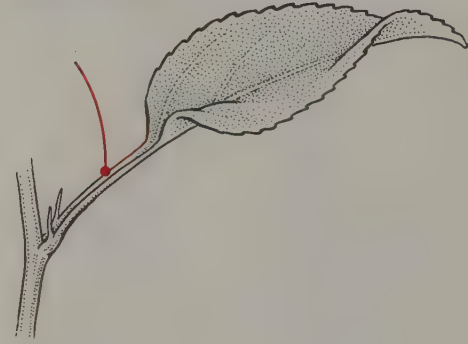


petaloid

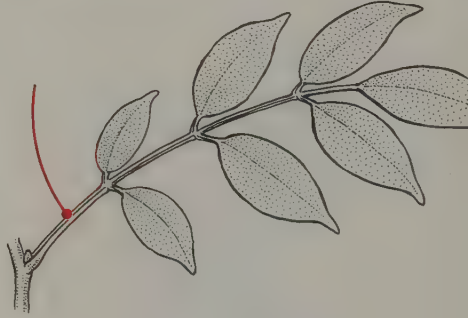
petal-like, may apply to any floral whorl, as in petaloid sepals (top) or petaloid stamens (below)

**petiolate**

having a petiole

**petiole**

leaf stalk that connects the blade to the stem

**petiolule**

leaflet stalk in a compound leaf

phanerogam

plant reproducing with seeds, not spores
ANTONYM **cryptogam**

-phore

suffix meaning stalk

phosphate

essential plant nutrient, abbreviated as P, the second number in fertilizer content

photoperiodism

growing or flowering in response to the length of light and/or dark periods

photosynthesis

process through which light energy from the sun is converted to chemical energy stored in sugars, occurs in chloroplasts

phototropism

growth or orientation of shoots, flowers, and leaves toward light

phyllary

one of the many bracts of the involucre subtending the capitulum inflorescence in the sunflower family (Asteraceae)

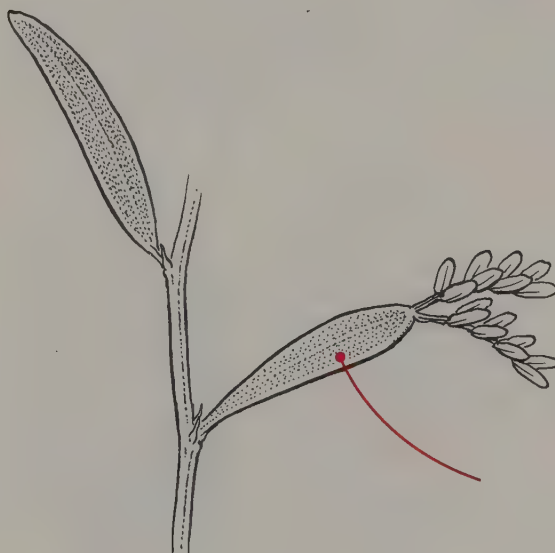


phylloclade

stem that looks and functions like a leaf
SYNONYM cladode, cladophyll

phyllode

leaf-like structure formed from a laterally expanded petiole without a blade or with a very reduced blade, as in some mimosas and wattles (*Acacia*); also applied to the flattened, non-pitcher leaves of pitcherplants (*Sarracenia*)



phyllotaxy

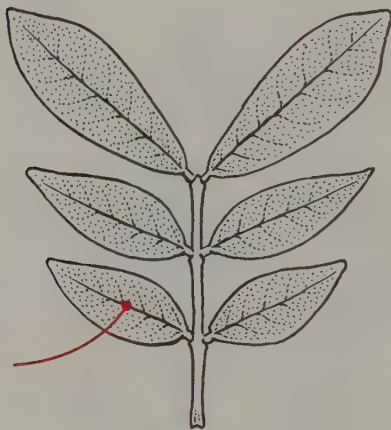
arrangement of leaves along the stem

pilose

covered in soft, long hairs

pinna

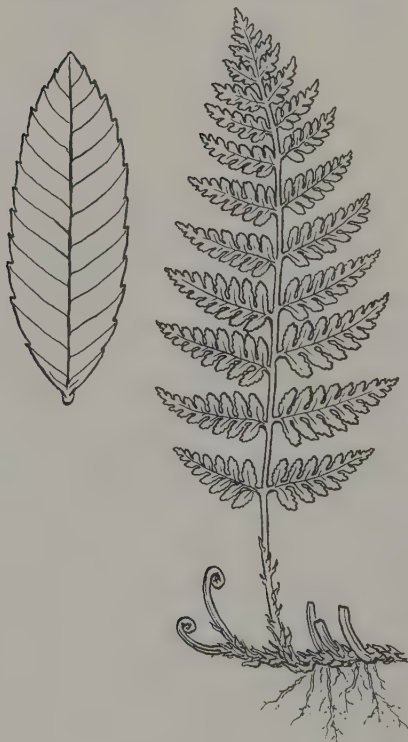
(plural pinnae) primary segment of a pinnately compound leaf; may be further divided or not; see also **leaflet**

**pinnatifid**

pinnately lobed blade whose sinuses extend halfway or slightly more to the midrib

**pinnate**

leaf with veins, lobes, leaflets, or dissections arising along a central elongate axis

**pinnatisect**

pinnately lobed blade whose sinuses extend nearly to the midrib



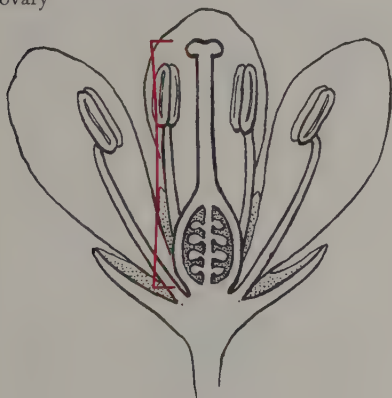
pinnule

ultimate segment of a leaf that is more than once-pinnately compound, as in some fern fronds



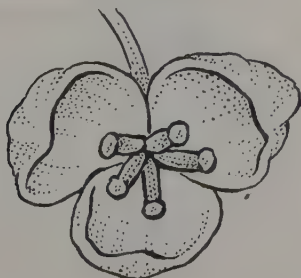
pistil

individual component of the innermost whorl of the flower (the gynoecium), each is made up of one to many fused carpels and normally consists of stigma(s), style(s), and ovary



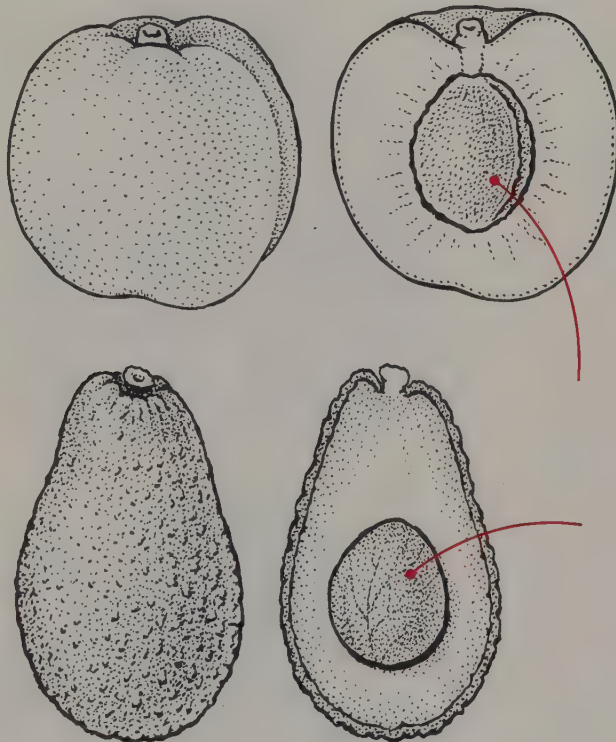
pistillate

having female reproductive structures (pistils) and lacking male structures (stamens)



pit

the hard middle part of a fleshy fruit, may be an endocarp, as in a peach (*Prunus persica*), or just a hard seed, as in an avocado (*Persea americana*)

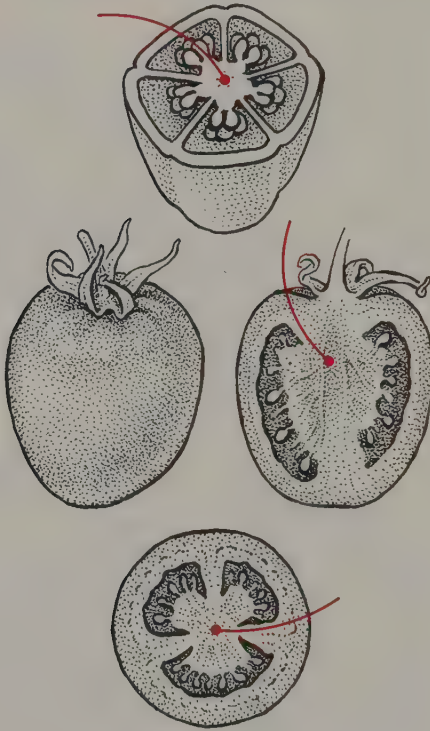


pith

soft, spongy tissue in the very center of the stems and monocot roots of vascular plants

placenta

tissue to which ovules are attached inside an ovary and seeds are attached inside a fruit

**placentation**

arrangement of placentas in an ovary; placenta location is most easily determined by locating the point(s) of attachment of the ovules or seeds

plane

flat surface

plano-convex

flat on one side and rounded outward on the other

plantlet

small plant, used in reference to those formed vegetatively on another plant naturally or from another plant through propagation



pleated

folded like a fan in regular, longitudinal pleats; e.g., the corolla of morning glories (*Ipomoea*), the fronds of palmettos (*Sabal*)

SYNONYM *plicate*

pleiomerous

having more than the usual number of parts in a floral whorl; e.g., roses (*Rosa*) that have a proliferation of petals

SYNONYM *doubled*

pleio-

prefix meaning more

pleiochasium

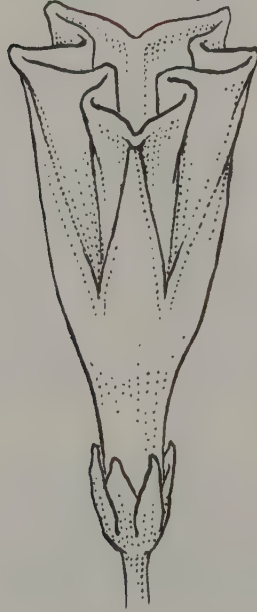
compound cyme with more than two branches produced at the first juncture of the main axis



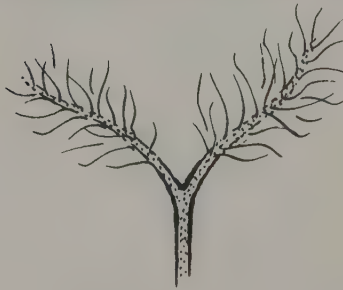
plicate

folded like a fan, a form of aestivation in which young flower parts are folded in regular, longitudinal pleats; e.g., morning glories (*Ipomoea*)

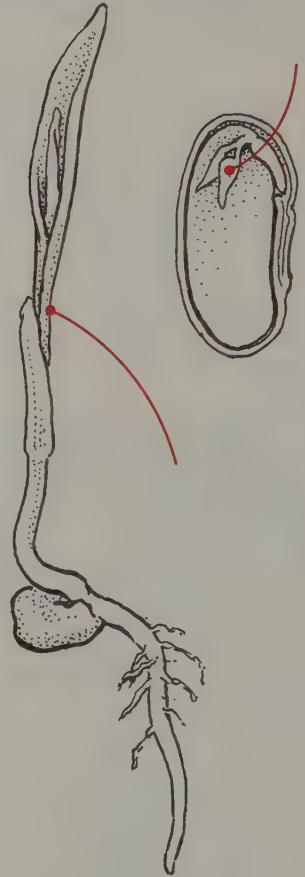
SYNONYM **pleated**

**plumose**

feather-like in structure and appearance

**plumule**

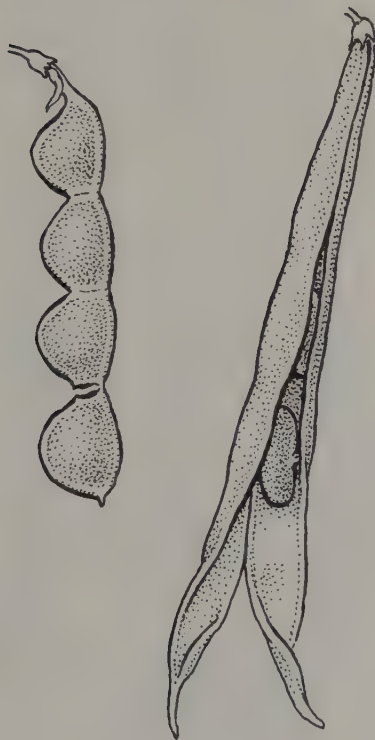
first shoot in a germinating seed

**pneumatophores**

vertical roots that are the site of gas exchange for otherwise inundated root systems, common in mangroves (*Avicennia*, *Rhizophora*)

pod

unspecific name for dry, dehiscent fruits such as legumes, capsules, silicles, siliques, and follicles



pollard

style of tree pruning in which tips of trunk and/or branches are cut back, encouraging new growth

pollen

microspore (when young), male gametophyte (when mature) of seed plants, carries sperm cells to ovules for fertilization; produced in anthers in flowering plants (angiosperms) and on scales of male cones in gymnosperms

pollinarium

in milkweeds (*Asclepias*), two pollinia, two translator arms, and a sticky corpusculum that attaches to a pollinator for transport



pollination

process by which pollen is delivered to the ovule of a gymnosperm or the stigma of an angiosperm

pollinator

organism (e.g., bird or insect) or other agent (e.g., wind or water) that transfers pollen from one plant to another; most commonly applied to organisms

pollinium

(plural pollinia) all the pollen in a single anther sac held together in a single mass for transfer by a pollinator, as found in milkweeds (*Asclepias*) and orchids (Orchidaceae); in milkweeds, part of a pollinarium

poly-

prefix meaning many

polycarpic

living and reproducing for more than two years, i.e., sets seed multiple times over its life

SYNONYM perennial

ANTONYM monocarpic

polychasium

compound cyme with more than two branches produced by each axis

polygamous

having male, female, and bisexual flowers on the same individual plant

polymorphic

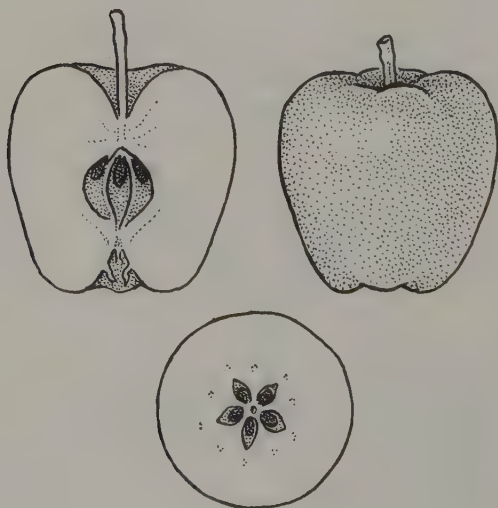
having many forms, applied to whole organisms or individual structures

polyploid

having more than two sets of chromosomes (e.g., $3n$, $4n$, $5n$, $6n$); see also **diploid**, **haploid**, **tetraploid**

pome

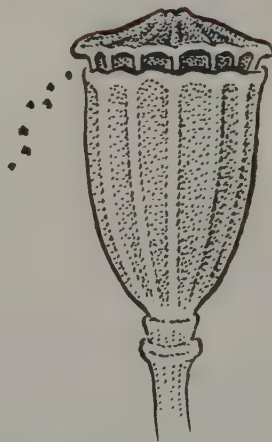
false fruit consisting of an expanded, fleshy hypanthium fused with the pericarp (core); called false because the majority of the tissue is derived from the hypanthium rather than the ovary; e.g., apples (*Malus*) and pears (*Pyrus*)

**pore**

small opening, as in anthers (e.g., Ericaceae) or capsules (e.g., poppies, *Papaver*)

**poricidal**

opening through one or more pores, as with some anthers or capsules; see also **circumscissile**, **loculicidal**, **septicidal**



potash

name for the form of potassium used in fertilizer

potassium

essential plant nutrient, abbreviated as K, the third number in fertilizer content

prickles

sharp, pointed epidermal projections

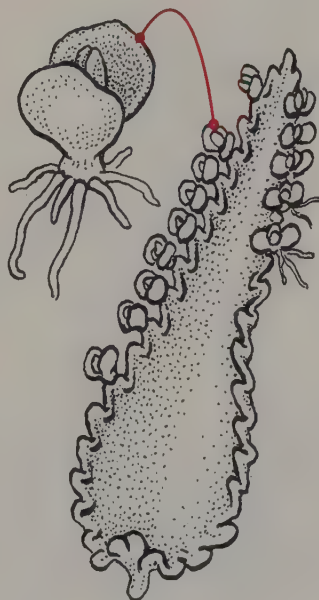


procumbent

growing along the ground without rooting at the nodes

proliferous

vegetatively reproducing by buds or plantlets usually produced on a leaf or flower



primary

first segment or branch; e.g., largest vein(s) in a leaf, leaflets in a pinnately compound leaf

primocane

a fruiting shrub's first-year stems, which may produce fruit late in the first growing season or wait until the next year to produce fruit; in some plants, such as raspberries and blackberries (*Rubus*), individuals with primocanes are called fall-bearing

ANTONYM **floricane**

prominent

conspicuous, as with a midvein on a leaf

propagation

the process of growing a plant from spore, seed, or vegetative stock from a parent

propagule

product or part of a plant capable of growing a new plant; e.g., bud, spore, seed, cutting

**prop root**

adventitious root emerging from the lower part of a trunk and acting as a structural support for the tree

SYNONYM anchor root, brace root, stilt root

**prostrate**

lying or growing flat along the ground

SYNONYM recumbent

protandrous

anther mature and releasing pollen before the stigma is mature and receptive to pollen, helps prevent self-pollination

protogyny

stigma mature and receptive to pollen before the anther is mature and releasing pollen, helps prevent self-pollination

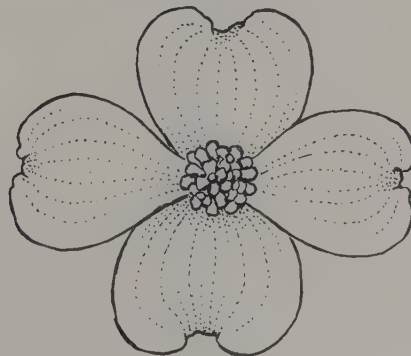
proximal

base, the end closest to the point of attachment

ANTONYM **distal**

**pseudanthium**

inflorescence that closely resembles a single flower; e.g., dogwood (*Cornus florida*), *Euphorbia* cyathia, Asteraceae heads/capitula
SYNONYM **false flower**

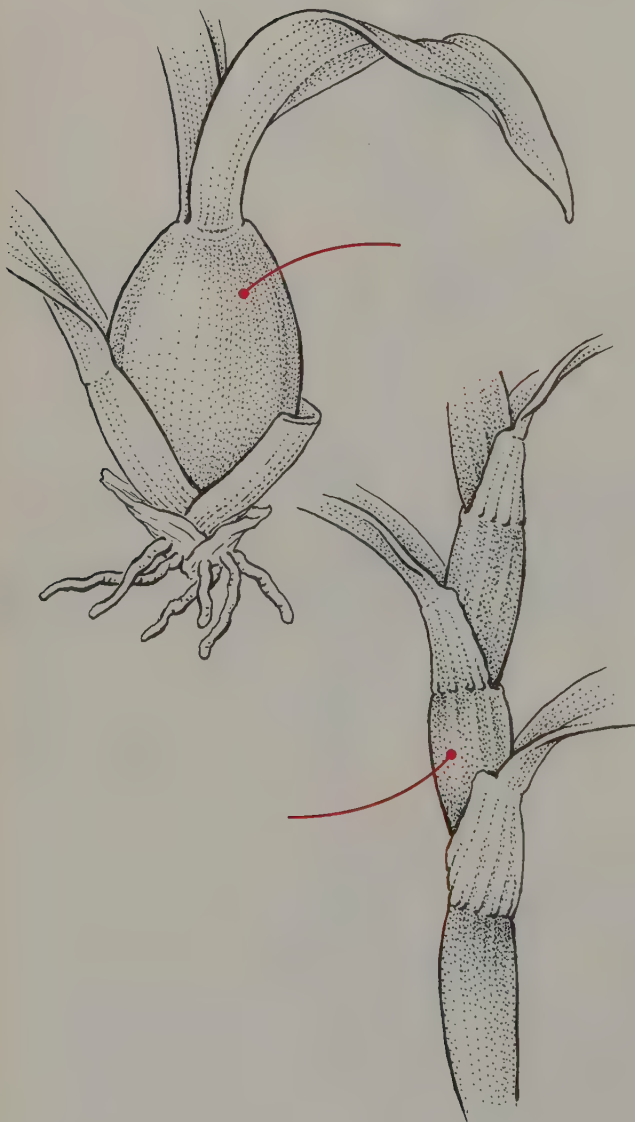


pseudo-

prefix meaning false or resembling

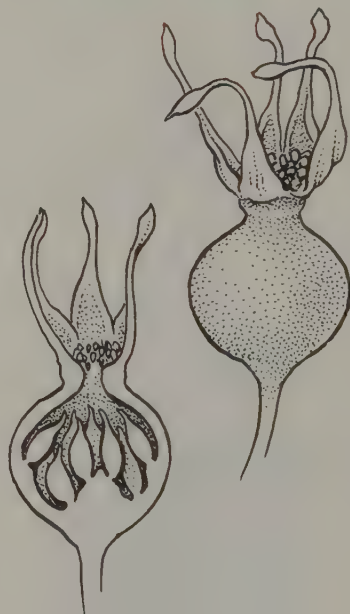
pseudobulb

swollen stem resembling a bulb, as in some orchids (Orchidaceae)

**pseudocarp**

seed-bearing structure resembling and often mistaken for a fruit but for which the majority of the tissue is non-ovary (may be from such structures as a hypanthium or receptacle); e.g., rose hips (*Rosa*)

SYNONYM **anthocarp**, false fruit

**pseudocopulation**

pollination strategy of some orchids in which floral parts mimic a female insect, tricking the male insect into attempting to mate with the flower

SYNONYM **sexual deception**

pseudoterminal

axillary growth that appears terminal in origin, as with some stems for which extending growth originates from lateral buds

ptyxis

arrangement of leaves in bud; see also

aestivation

SYNONYM **vernation**

puberulent

having very small hairs

pubescence

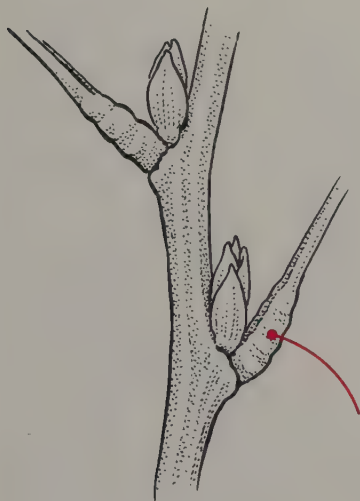
hairiness

pubescent

having hairs

pulvinus

(plural pulvini) swollen base of petiole or petiolule (in latter case, sometimes called pulvinulous)

**punctate**

spotted with pits or dots

pup

a small plant produced vegetatively by another plant

**pyramidal**

shaped like a pyramid

pyriform

shaped like a pear



quad-

prefix meaning four

quinque-

prefix meaning five

R

raceme

inflorescence with pedicellate flowers borne on an unbranched elongated central axis



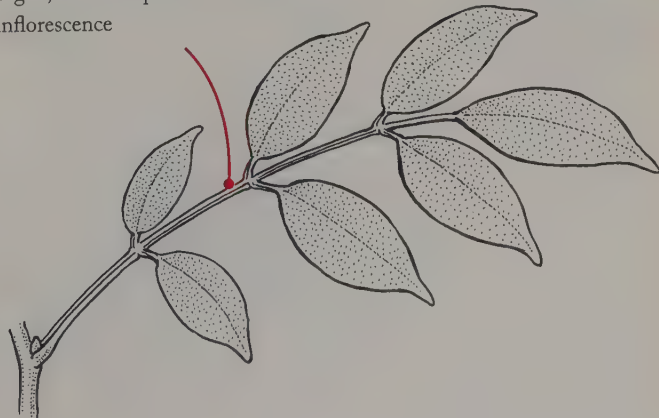
rachilla

a small or secondary rachis, usually applied to the axis of a spikelet of grasses or sedges



rachis, rhachis

the central axis of a branched or dissected organ, such as a pinnate leaf or an inflorescence

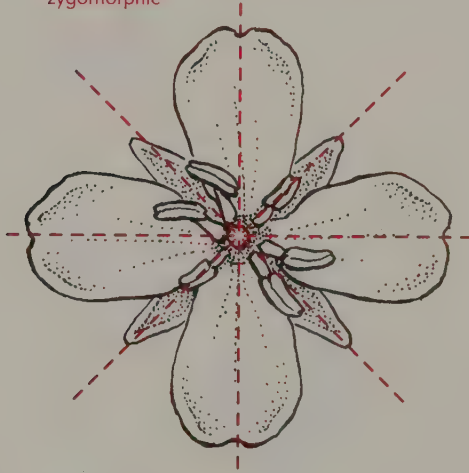


radially symmetrical

having multiple planes of symmetry such that any line drawn through the middle produces two mirror-image halves, usually applied to flowers

SYNONYM actinomorphic, regular

ANTONYM bilaterally symmetrical, irregular, zygomorphic



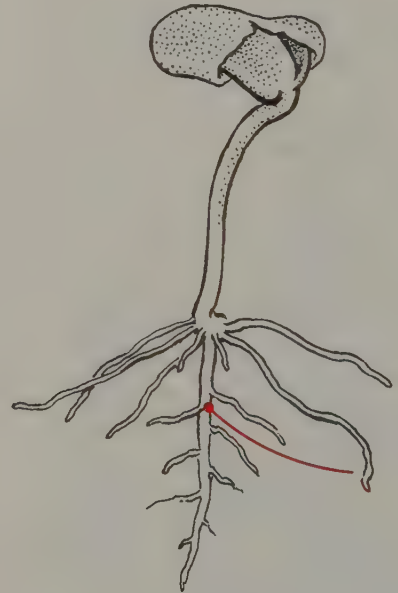
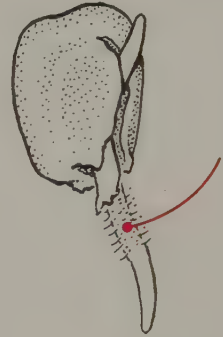
radiate

1. spreading outward, as with the stigmas of poppies (*Papaver*) or petals from the flower's center; 2. in the sunflower family (Asteraceae), head/capitulum inflorescence having ray/ligulate flowers



radicle

first root of a germinating seed



ramet

a vegetatively reproduced individual in a genetically identical colony called a genet

ramicaul

a single-leafed stem, as in *Pleurothallis* orchids



range

native geographic distribution

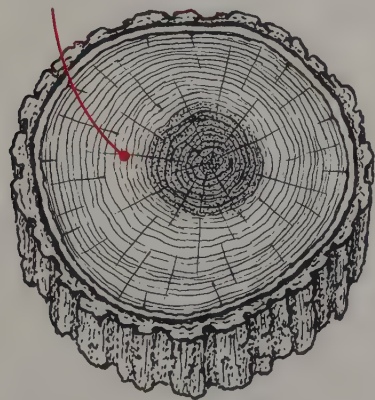
ratoon

stem that sprouts from the root of a perennial plant that has been cut down, as with sugarcane (*Saccharum*) after it is harvested, or trees after they are felled

ray

1. the elongated fused corolla of some flowers in the sunflower family (Asteraceae);
2. in wood, a band of tissue that runs perpendicular to the vascular tissue, creating cross markings across the vascular rings

SYNONYM 1. *ligule*

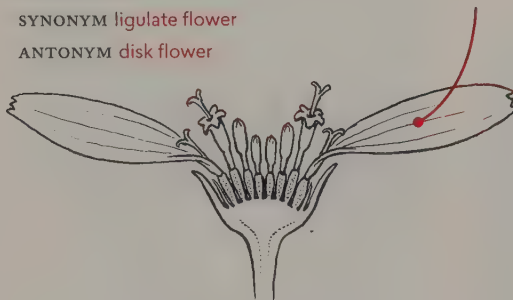


ray flower

flower with an elongated fused corolla on one side, found in sunflower family (Asteraceae) inflorescences, together they form what look like the petals of these "false flower" inflorescences

SYNONYM *ligulate flower*

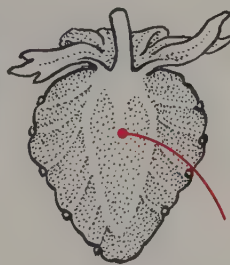
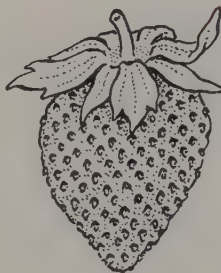
ANTONYM *disk flower*



receptacle

1. in flowers and fruits, tissue to which all the floral whorls are attached; 2. in the sunflower family (Asteraceae), location on inflorescence where all the florets are attached

SYNONYM 1. *torus*



receptive

mature and ready to receive pollen grains, applied to the stigmas of pistils

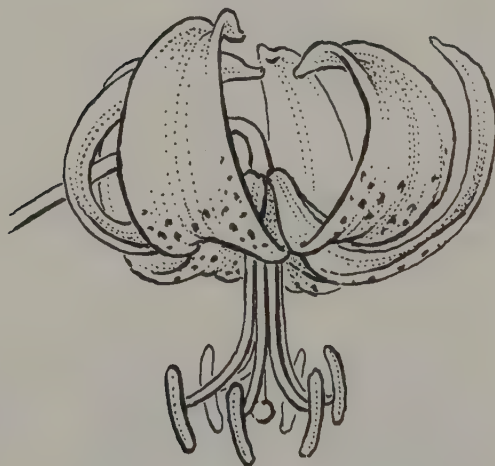
recumbent

lying or growing flat along the ground

SYNONYM **prostrate**

recurved

curved backward toward the point of attachment

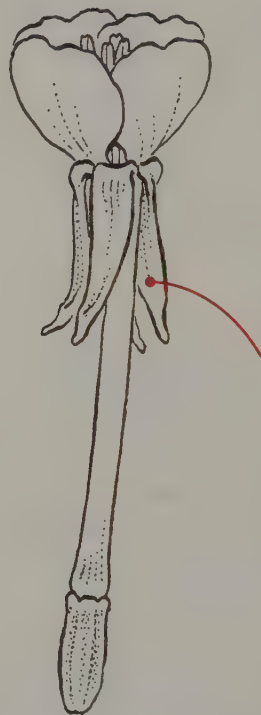
**reduplicate**

folded from the base to the apex with the under (abaxial) surface facing itself

ANTONYM **conduplicate**

reflexed

bent backward toward the point of attachment

**refoliate**

grow leaves back after an unexpected loss from such things as disease, herbivory, or spring frost

regular

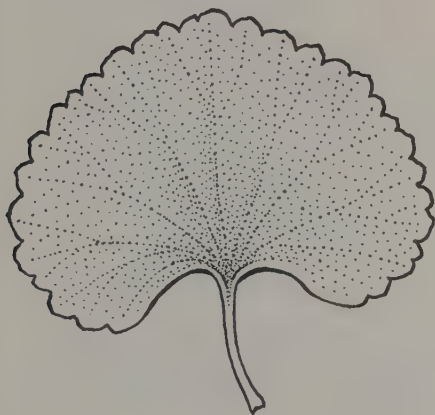
having multiple planes of symmetry such that any line drawn through the middle produces two mirror-image halves, usually applied to flowers

SYNONYM actinomorphic, radially symmetrical

ANTONYM bilaterally symmetrical, irregular, zygomorphic

reniform

shaped like a kidney



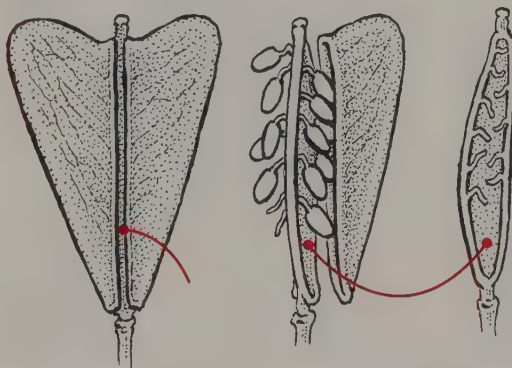
repand

margin or surface shallowly wavy, more often applied to surfaces

SYNONYM undulate

replum

1. persistent septum to which seeds are attached in the middle of silicle and silique fruits in the mustard family (Brassicaceae);
2. marginal placenta that separates from the fruit wall at dehiscence, e.g., in *Mimosa* (Fabaceae)



reseed

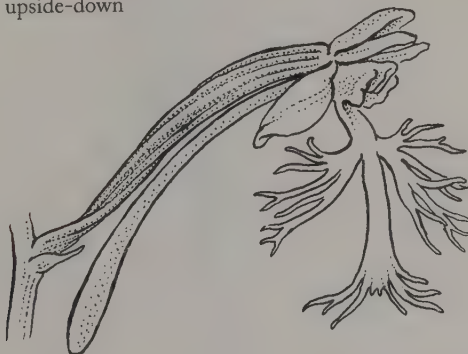
plant seeds again, usually used in reference to grasses in lawns

resin

sticky exudate of some woody plants that is insoluble in water

resupinate

pedicel twisted 180°, turning the flower upside-down



reticulate

having branched veins that connect to form an intricate pattern

SYNONYM **net-veined, netted**

**retorse**

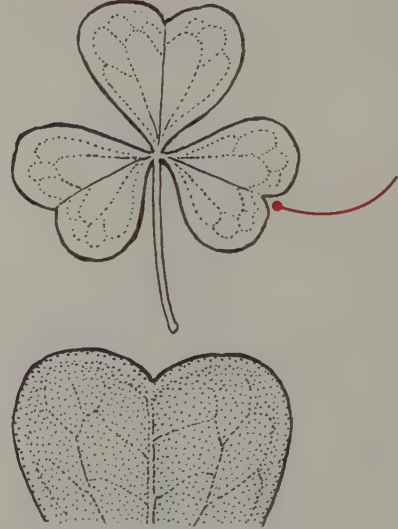
pointing down or toward the base

ANTONYM **antrorse**

**retuse**

having a rounded apex with an abrupt and shallow indentation in the center

SYNONYM **emarginate**

**revolute**

rolled downward toward the lower (abaxial) surface

ANTONYM **inrolled, involute**



rhachis, rachis

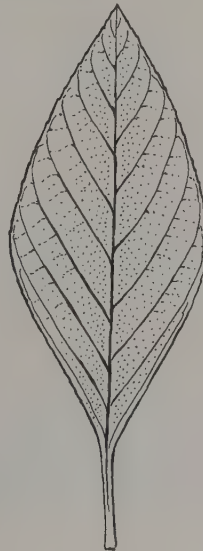
the central axis of a branched or dissected organ, such as a pinnate leaf or an inflorescence

**rhizome**

an underground, usually horizontal stem, such as that of ginger (*Zingiber officinale*)

**rhomboid, rhombic**

shaped like a diamond

**rhizomatous**

having rhizomes

rib

conspicuous leaf vein, most commonly applied to primary veins

**riparian**

growing on the banks of rivers or streams

ripe

fully mature, as with fruit

root

the usually below-ground part of a plant that lacks leaves, stems, and nodes, organ through which most nutrients and water are absorbed

root ball

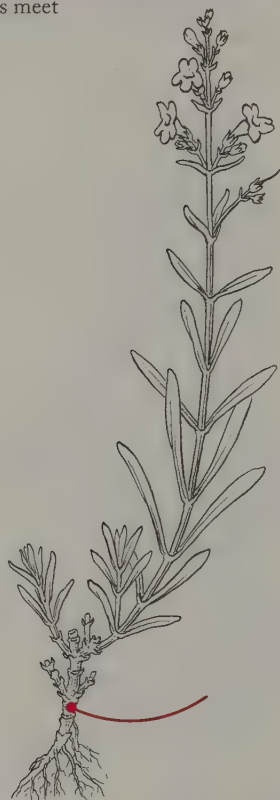
the roots and soil that remain attached to a woody plant dug up for transfer to a new location, often wrapped in burlap

rootbound

said of a plant, potted or otherwise confined, whose roots have filled the available space and grown in unusual and often unhealthy formations as a result

root crown

location on a plant where the stem and root systems meet

**root nodule**

rounded knobs on the roots of many legumes (Fabaceae) which house nitrogen-fixing bacteria



rootstock

plant onto which another plant (the scion) is grafted

rosette

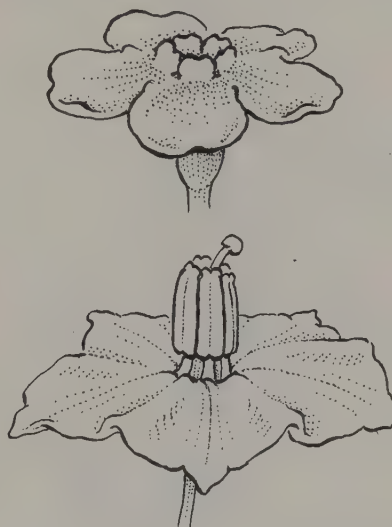
dense ring of leaves, or other organs, around the base of a plant at or near the ground

**rostellum**

projection in an orchid flower's column between the stigma and the anther, helps prevent self-pollination

rotate

shaped like a disk, applied to a corolla in which petals lack a floral tube and are extended, forming a flat circular plane

**rudimentary**

underdeveloped, reduced in size and not functional; e.g., non-functional, reduced stamen (staminode) in a flower

SYNONYM *obsolete, vestigial*

rufous, rufus

reddish brown, rust- or chestnut-colored

SYNONYM *castaneous, ferruginous*

rugose

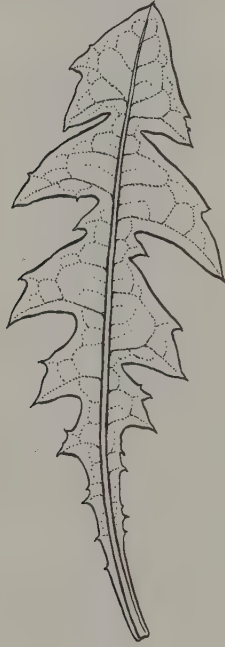
wrinkled

ruminate

coarsely wrinkled, appearing as if chewed

runcinate

pinnatifid with the lobes pointed and sloping toward the petiole; e.g., the leaves of dandelion (*Taraxacum officinale*)



runner

horizontal, above-ground, creeping stem with roots and shoots forming at nodes and the tip, as with strawberries (*Fragaria*)

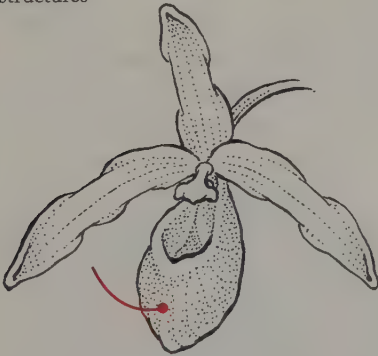
SYNONYM **stolon**



S

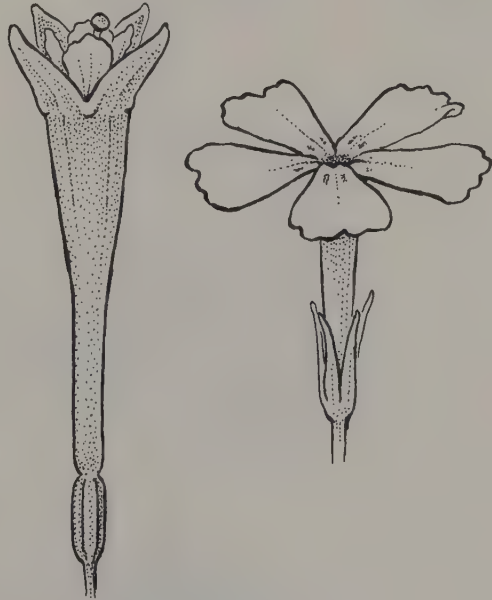
saccate

bag-shaped or consisting of bag-like structures



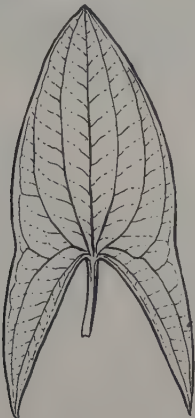
salverform

trumpet-shaped with a long, narrow neck, as with some fused corollas



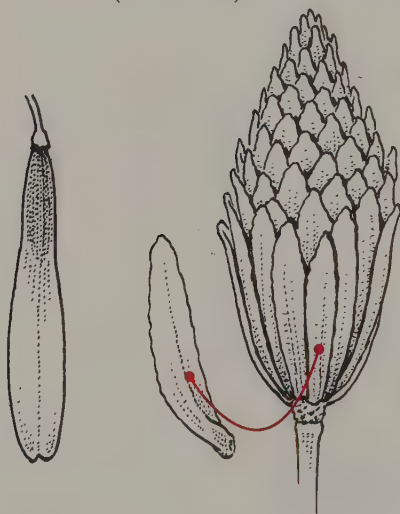
sagittate

arrowhead-shaped with basal lobes pointing downward



samara

dry, indehiscent fruit with wings formed from an expansion of the pericarp; e.g., the fruit of ash (*Fraxinus*) and tulip trees (*Liriodendron*)

**samaroid**

samara-like

samaroid schizocarp

fruit derived from a two-carpellate ovary that splits at maturity into two winged sections (mericarps that resemble samaras); e.g., the fruit of maples (*Acer*)

SYNONYM **double samara**

**sap**

the liquid within the vascular tissue of plants

sapling

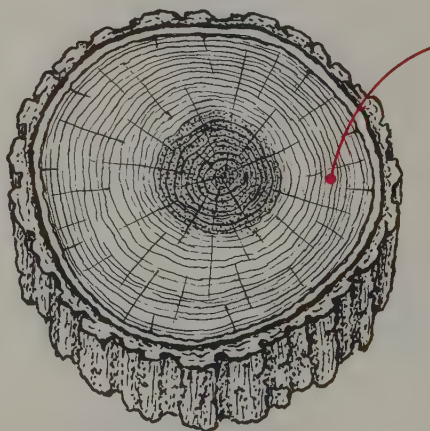
young tree that has woody growth but which is still quite flexible

saprophyte

fungus that derives nutrients from decaying organic matter; all plants previously thought of as saprophytic actually have a parasitic relationship with a fungus and a green plant; see **mycoheterotroph**

sapwood

outer, younger, lighter wood of trees; lies outside of the heartwood and is usually considered less desirable for woodworking



sarmentose

having long, thin runners (stolons)

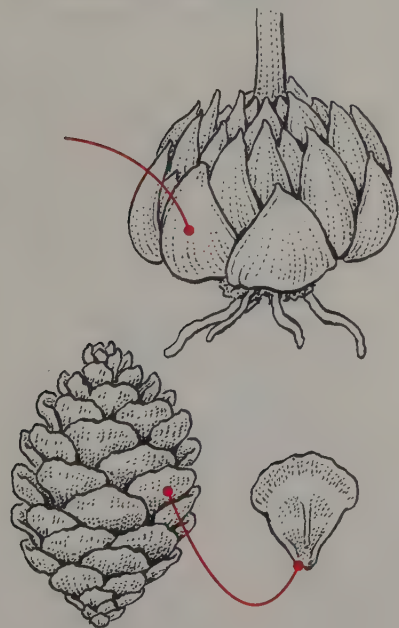
SYNONYM *flagellate*

**scabrous**

rough, like sandpaper, to the touch

scale

1. type of epidermal projection (trichome) that is usually flattened and broad; 2. small leaf or leaf-like structure; 3. one of the fleshy or dried leaves of a bulb; 4. cone/strobilis segment, usually bearing spores, pollen, ovules, or seeds; 5. sap-sucking insect pest in the superfamily Coccoidea

**scandent**

climbing or leaning so as to be dependent on other plants or structures for vertical growth support

scape

leafless flower or inflorescence stalk (peduncle) originating from a root, bulb, or corm, typically in plants that have a basal rosette of leaves; e.g., tulips (*Tulipa*), Japanese primrose (*Primula japonica*)

**scapiform**

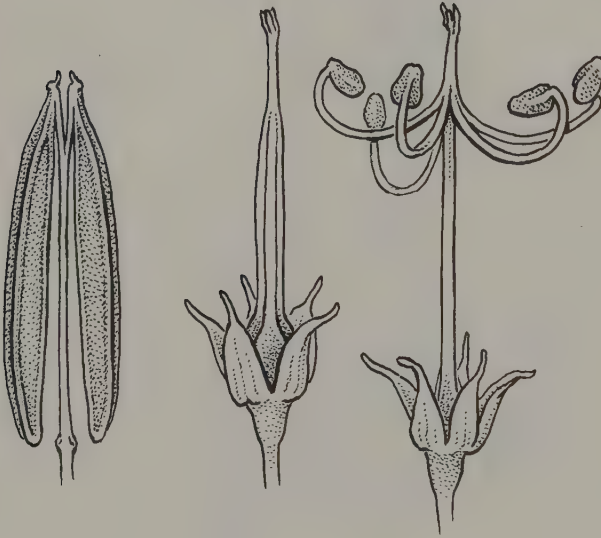
closely resembling a scape but with leaves along the stalk

scar

1. mark left on the stem where the leaf was attached; 2. mark within the leaf scar on the stem from where the leaf's vascular tissue was attached; 3. mark left on the seed from where the funicle attached it to the ovary wall; 4. mark left on any organ from where damage was done to epidermal tissue

schizocarp

fruit derived from a two- to multicarpellate pistil that splits at maturity into individual segments (mericarps, equivalent to the carpels)

**scion**

plant cutting that is grafted onto a rootstock in order to grow a plant that has the above-ground characteristics of the cutting

scorpioid cyme

sympodial inflorescence with flowers borne alternating from side to side on the axis and resembling a scorpion's tail; can be difficult to distinguish from a helicoid cyme

scurf

a covering of scales on some plant organs, may cause dark or rough spots

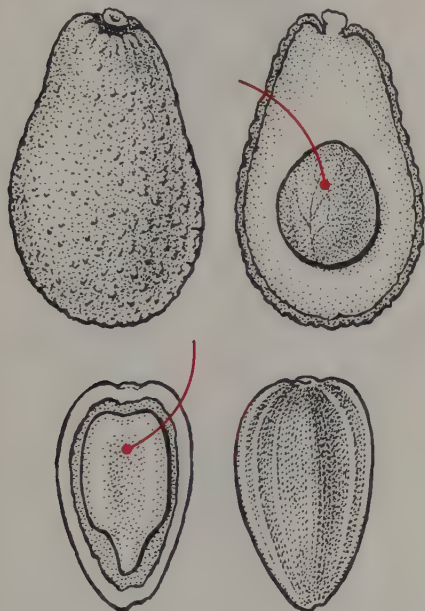
secund

with parts on one side only; e.g., flowers on only one side of an inflorescence



seed

sexual reproductive structure in which the embryo is housed; a ripened ovule; e.g., the pit of an avocado (*Persea americana*); the seed of a sunflower (*Helianthus annuus*)



seed coat

layer of tissue covering a seed, derived from the integuments surrounding the ovule

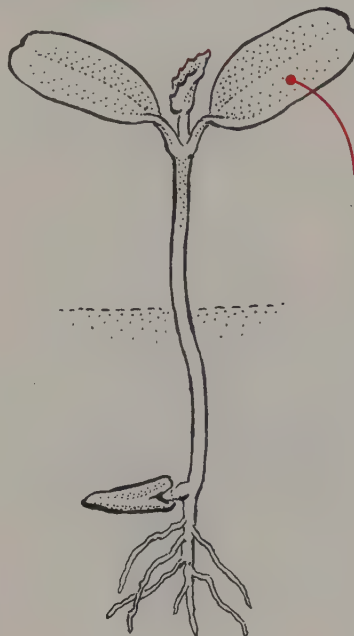
SYNONYM *testa*



seed leaf

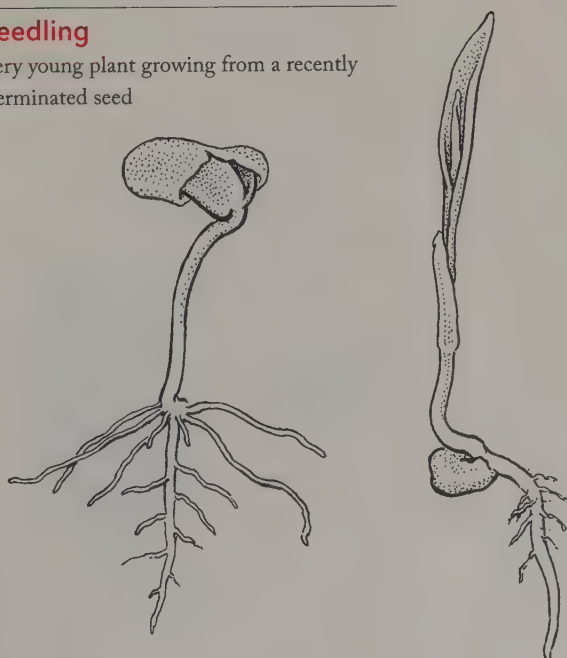
one of a seed's first leaves

SYNONYM *cotyledon*



seedling

very young plant growing from a recently germinated seed

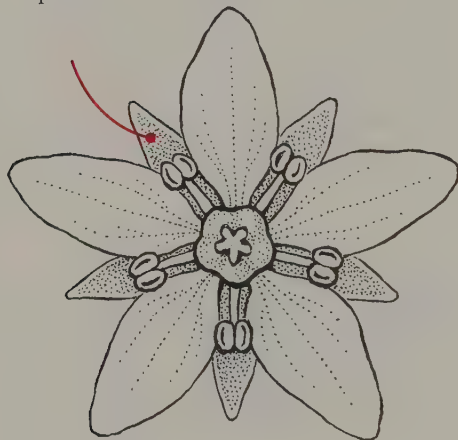


self-pollination, selfing

transfer of pollen from the plant's own anther to a stigma on the same plant

sepal

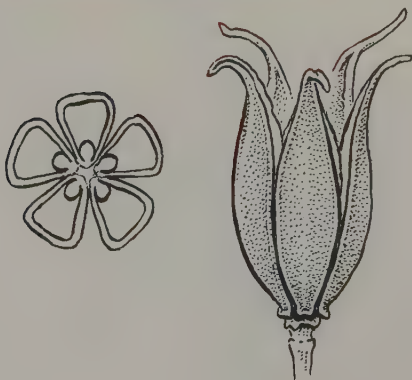
individual component of the outermost whorl of the flower (the calyx), leaf-like or petal-like

**sepaloid**

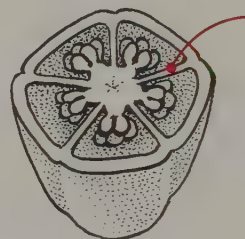
sepal-like in appearance

septicidal

opening at the septa to dehisce; see also *circumscissile*, *loculicidal*, *poricidal*

**septum**

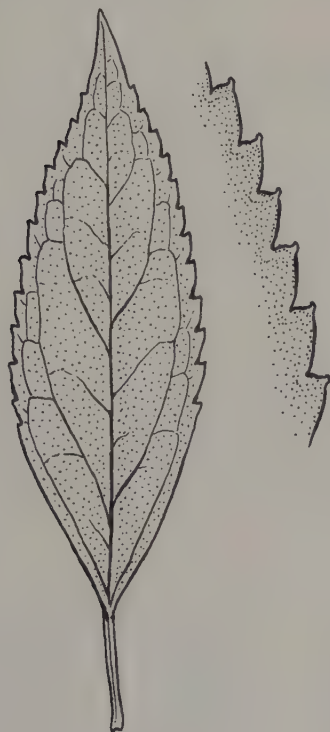
(plural *septa*) wall between chambers (locules) in an ovary or fruit

**serotinous**

having seed release triggered by an environmental condition such as heat from fire

serrate

having teeth pointing up toward the apex

**serrulate**

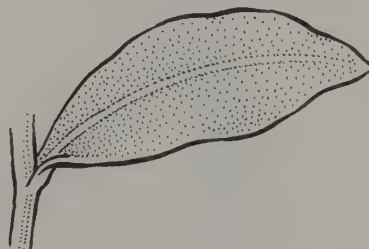
having minute teeth pointing up toward the apex

**serration**

individual tooth of a serrate margin, or the whole margin itself

sessile

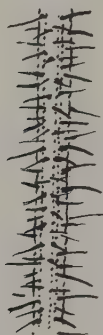
lacking a stalk; e.g., leaf without a petiole

**set**

in plant propagation, a young transplant

setose

bearing bristles; bristly

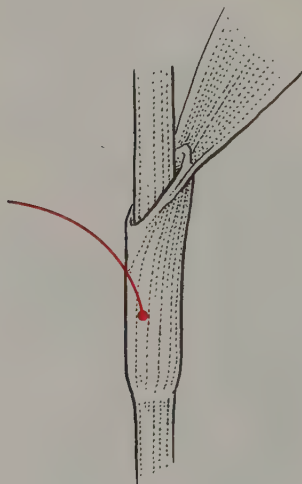
**sexual deception**

pollination strategy of some orchids in which floral parts mimic a female insect, tricking the male insect into attempting to mate with the flower

SYNONYM *pseudocopulation*

sheath

usually flattened and elongated part of a structure that fully to partially covers another structure, as with the leaf base on the stem of some monocots

**sheathing**

forming a sheath, as with leaves sheathing a stem

shoot

stem, often applied to new stem growth

short-day plant

plant that requires more than 12 hours of darkness per day to grow and reproduce

ANTONYM *long-day plant*

short shoot

stem with highly compressed internodes that usually bears the leaves and reproductive structure; e.g., ginkgos (*Ginkgo*), apples (*Malus*)

SYNONYM *brachyblast*, *spur*

ANTONYM *long shoot*



shrub

woody plant with multiple main stems,
usually shorter than a tree

SYNONYM bush

shrublet

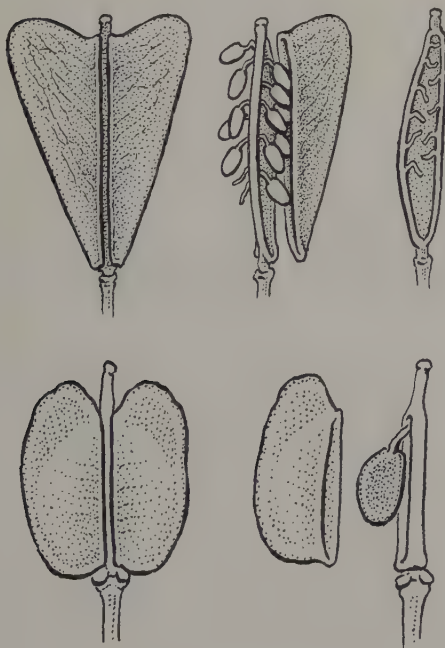
small shrub

sigmoid

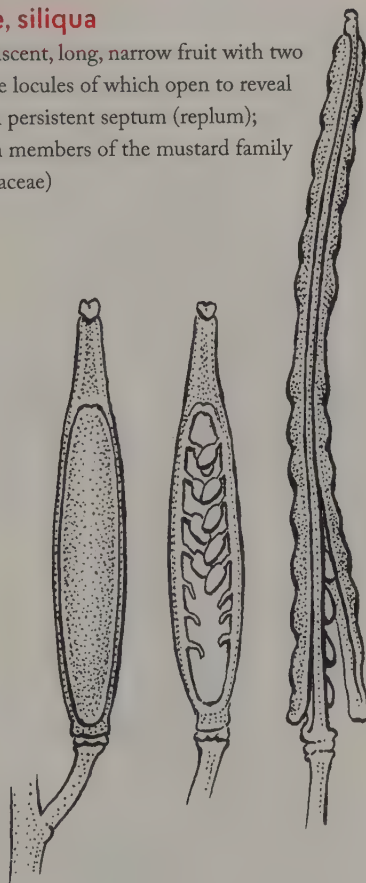
shaped like the letter S

silicle

dry, dehiscent, short, wide, flattened fruit
with two sides, the locules of which open to
reveal a central persistent septum (replum);
found in members of the mustard family
(Brassicaceae)

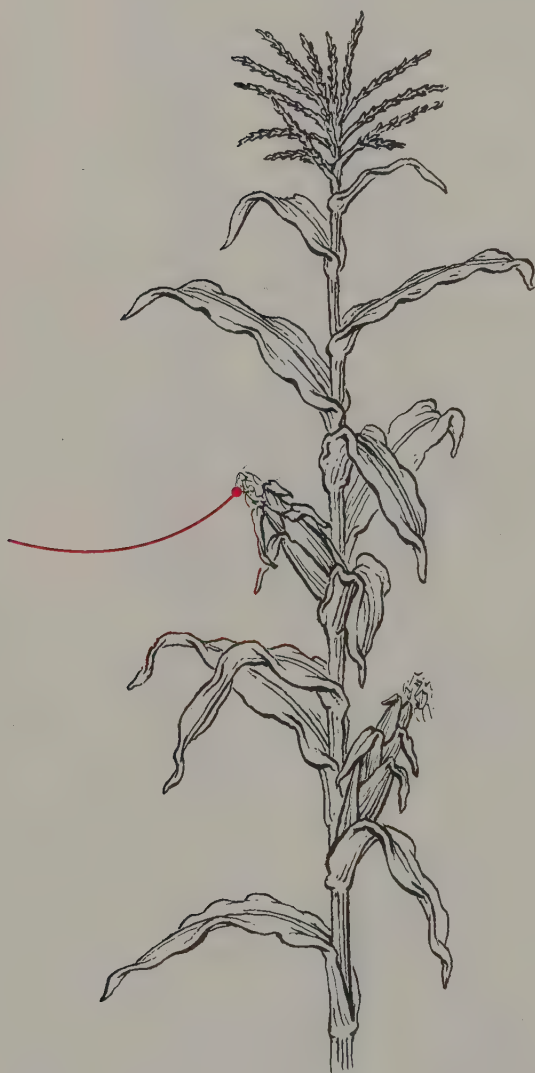
**siliqua, siliqua**

dry, dehiscent, long, narrow fruit with two
sides, the locules of which open to reveal
a central persistent septum (replum);
found in members of the mustard family
(Brassicaceae)

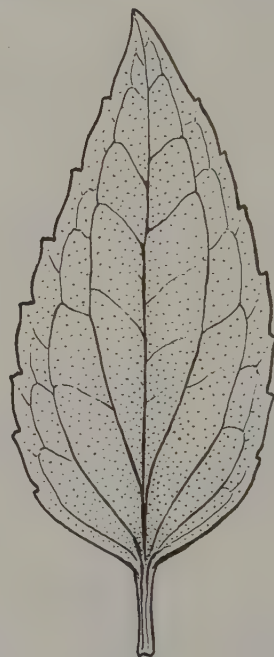


silk

the long, fine, soft styles of corn (*Zea mays*) inflorescences and cobs

**simple**

1. an undissected leaf; 2. an unbranched inflorescence

**sinker**

shoot growing downward from a bulb or corm, ending in a new bulb or corm

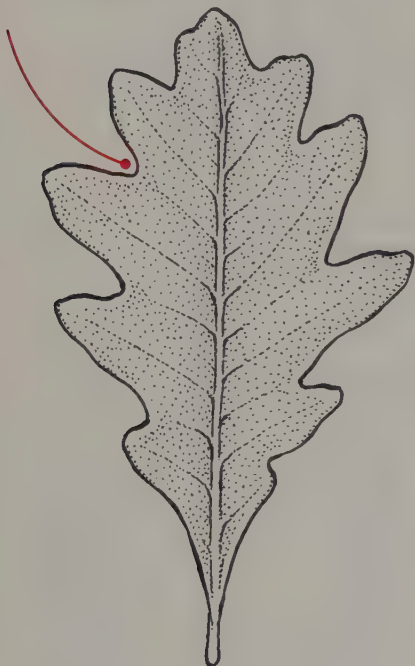
SYNONYM dropper

sinuate, sinuous

having a wavy margin

sinus

the portion of a margin that dips in between two lobes or crenations

**smooth**

1. in relation to surfaces, even, not bumpy or rough; 2. in relation to margins, entire, not lobed or toothed

snag

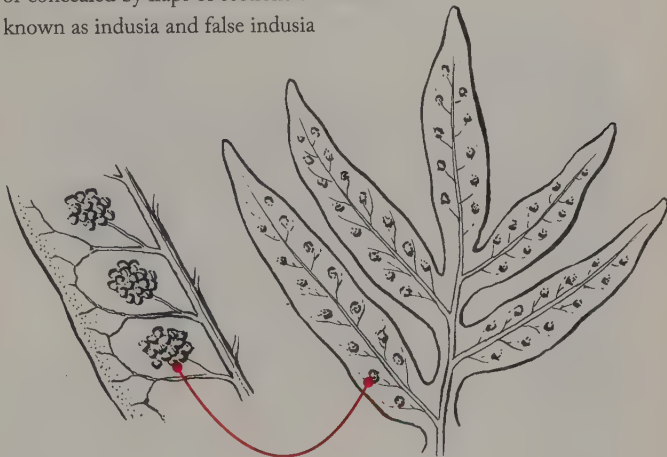
1. a dead tree; 2. remaining portion of a branch that has otherwise been removed

solitary

singular, only one

sorus

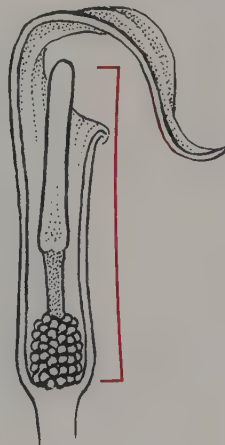
(plural sori) clump of fern sporangia, usually freely borne on the underside of a fern leaf, or concealed by flaps or sections of tissue known as indusia and false indusia

**sp.**

abbreviation for one species (singular)

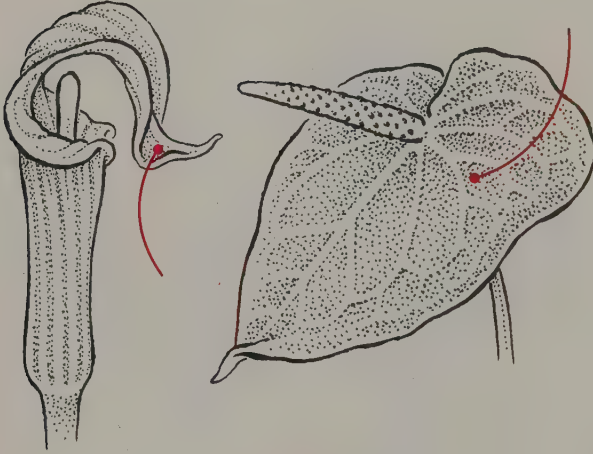
spadix

unbranched inflorescence with flowers slightly sunken into an elongated, thickened axis; the inflorescence of aroids (Araceae)



spathe

bract that subtends and/or partially surrounds the spadix inflorescence of aroids (Araceae)

**spatulate**

shaped like a spatula

**species**

taxonomic rank below genus and inclusive of any subspecies, varieties, or forms

spherical

round in three dimensions

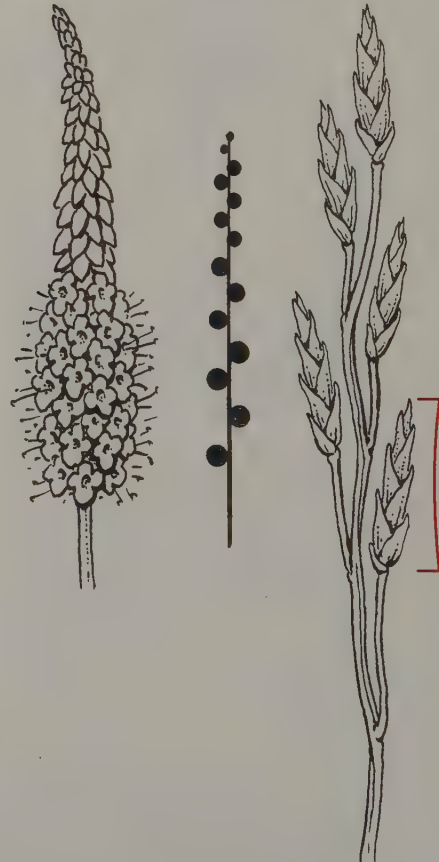
SYNONYM *globose, globular*

spicate

having spikes or being in a spike

spike

inflorescence with sessile flowers borne on an unbranched elongated central axis



spikelet

small spike

**spinose, spiny**

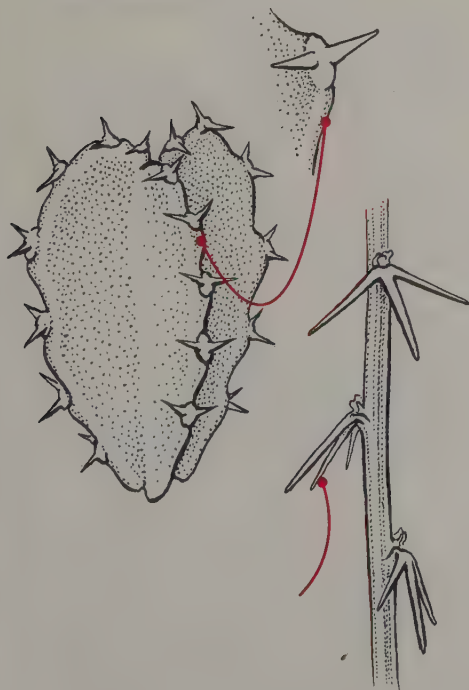
having spines

**spinose tooth**

tooth at the margin of a leaf or leaf-like structure that is pointy and sharp and resembles a spine

**spine**

sharp, pointed modified leaf, leaflet, bract, sepal, or stipule

**spinulose**

having small spines



sporangium

(plural sporangia) spore-containing pouch or sac

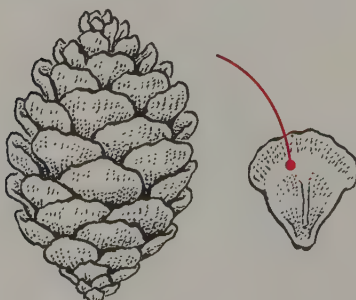


spore

reproductive unit and the first cell of the gametophytic stage of a plant's life cycle, usually unicellular and microscopic

sporophyll

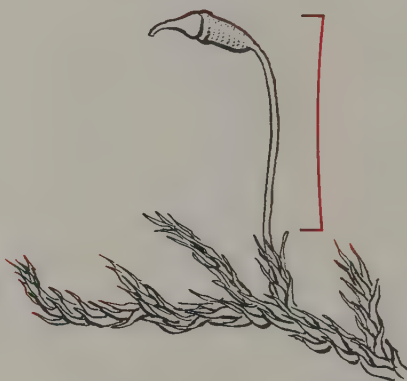
sporangia-bearing specialized leaf; e.g., cone scale, pistil, stamen



sporophyte

life cycle generation in which a plant has two sets of chromosomes (i.e., is diploid, $2n$) and produces spores; the sporophyte is dominant in both time and size for vascular plants, making it their most conspicuous generation; e.g., tree, fern

ANTONYM gametophyte



sport

a shoot whose morphology does not match that of the rest of the plant; mutant shoot

spp.

abbreviation for more than one species (plural)

spring ephemeral

plant that grows, flowers, fruits, and dies back completely by mid summer

sprout

1. a seedling; 2. to send out new growth



spur

1. hollow appendage on a flower, often containing nectar and a projection from or a modification of the perianth; 2. stem with highly compressed internodes that usually bears the leaves and reproductive structure, e.g., ginkgos (*Ginkgo*), apples (*Malus*)

SYNONYM 1. *calcar*; 2. *brachyplast*, *short shoot*

ANTONYM 2. *long shoot*



spurred

having a spur

SYNONYM *calcarate*

squam-

prefix meaning scales

squamose, squamate

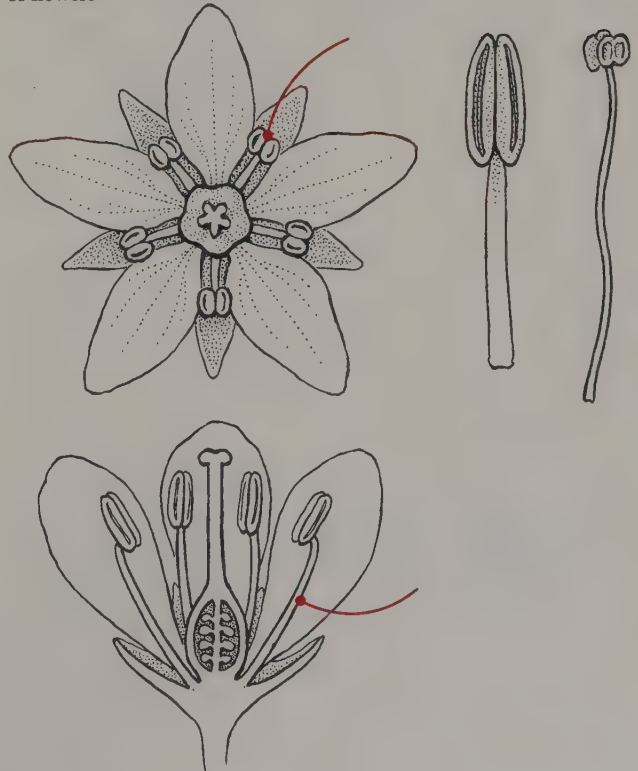
covered in scales

stalk

structure subtending an organ such as a flower (called a pedicel or peduncle) or leaf (called a petiole), most often more narrow than the organ itself

stamen

male reproductive structure consisting of a filament (stalk) and a pollen-bearing anther; individual unit of the third whorl of the flower (the androecium); the male sporophyll of flowers

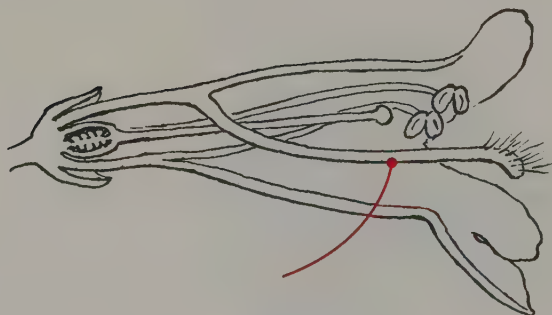
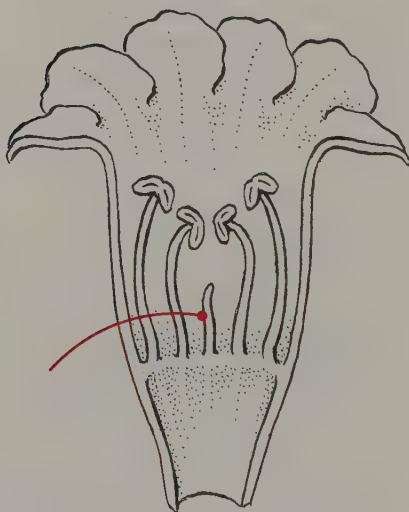


staminate

having male reproductive structures (stamens) and lacking female structures (pistils)

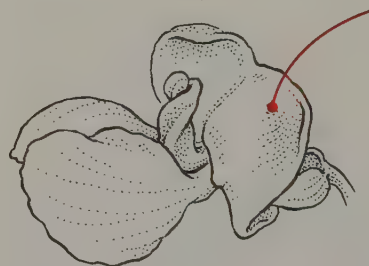
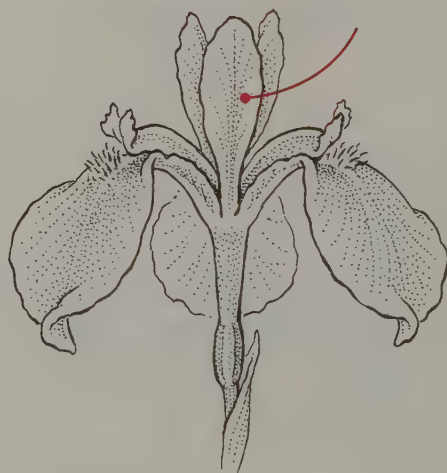
**staminode**

sterile stamen, often reduced in size (top) or modified to attract pollinators (below)

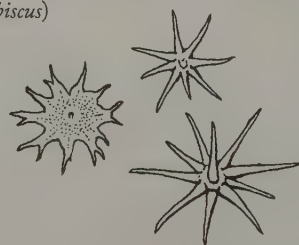
**standard**

1. one of the three inner tepals (all sepals) in the flowers of irises (*Iris*); see also **fall**; 2. flower petal typical of papilionoid legumes in the bean family (Fabaceae), usually the upper and largest petal, e.g., sweet peas (*Lathyrus*), lupines (*Lupinus*)

SYNONYM 2. **banner**, **vexillum**

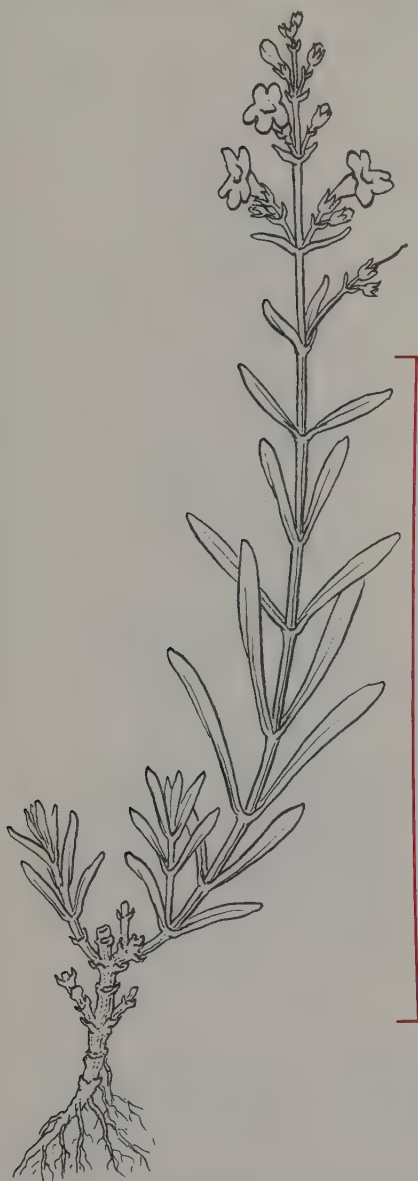
**stellate**

shaped like a star, most commonly used to describe multiple hairs growing from the same spot, like those found on hibiscus (*Hibiscus*)



stem

the part of the plant from which leaves and buds emerge at nodes, usually above ground but sometimes below ground



sterile

1. not currently in a reproductive state, i.e., not flowering or fruiting; 2. not capable of sexual reproduction, e.g., the vegetative fronds of sensitive fern (*Onoclea sensibilis*), or the showy florets of lacecap hydrangeas (*Hydrangea*)

SYNONYM 2. **infertile**



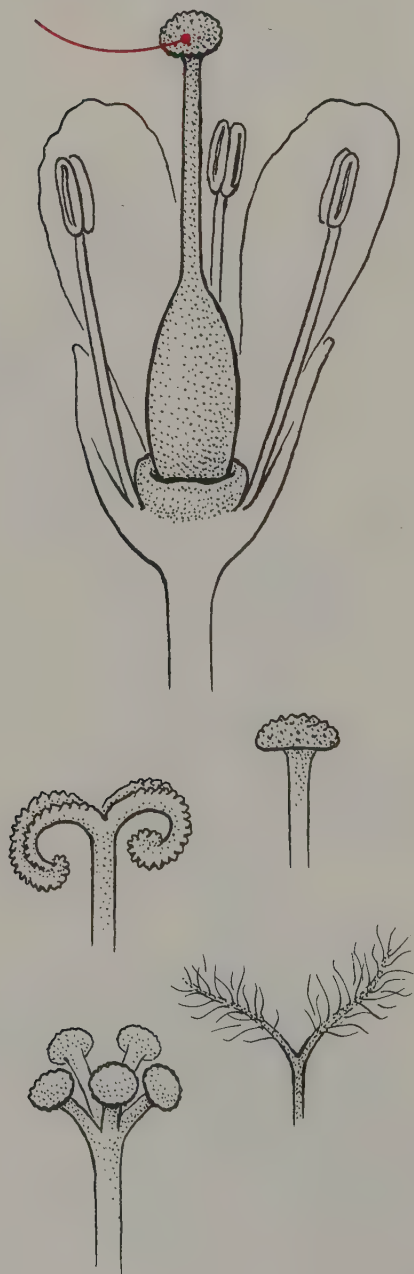
sticktight

plant or plant part that sticks to clothing, hair, or fur



stigma

top section of the pistil that is receptive to pollen; illustrated in detail below (clockwise from upper left) are bifurcate, discoid, plumose, and lobed stigmas



stilt root

adventitious root emerging from the lower part of a trunk and acting as structural support for a tree

SYNONYM anchor root, brace root, prop root



stipe

1. in ferns, the stalk of the frond, equivalent to the petiole of seed plants; 2. in orchids, the stalk-like connection between the viscidium and the pollinia



stipel

small leafy or spiny structure associated with the leaflet base or petiolule

stipellate

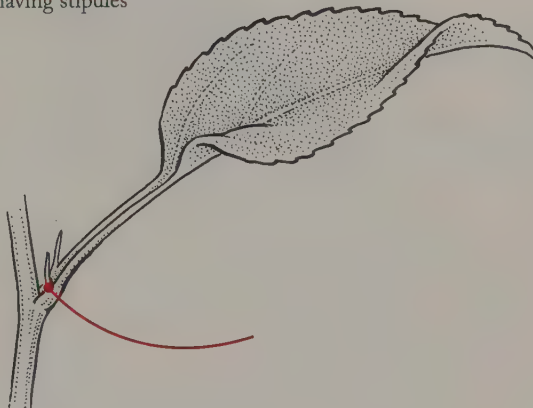
having stipels

stipular

pertaining to stipules, as with scars left on the stem when the stipules fall off, such as in the magnolia family (Magnoliaceae)

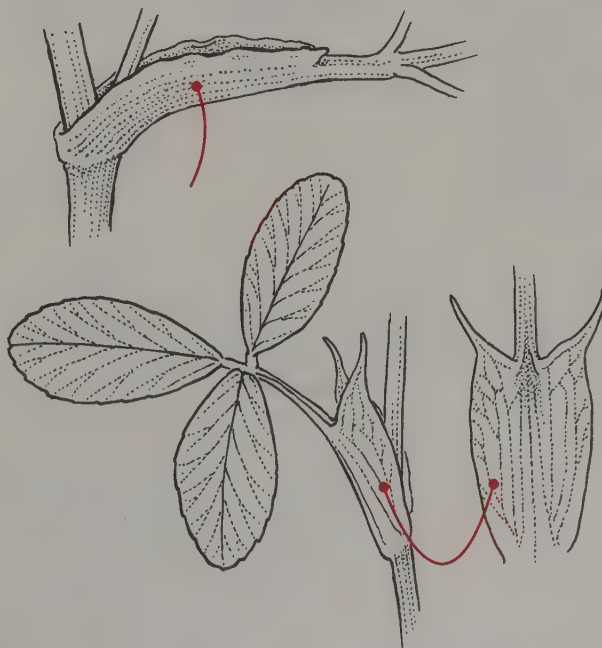
stipulate

having stipules



stipule

leafy or spiny structure associated with the petiole and/or node of some plants



stolon

horizontal, above-ground, creeping stem with roots and shoots forming at nodes and the tip

SYNONYM **runner**

**stoloniferous**

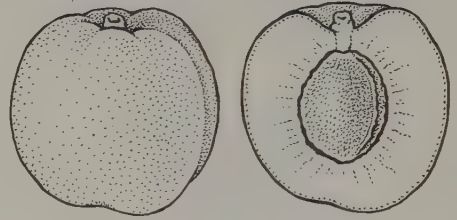
having stolons

**stone**

hard endocarp of fleshy drupes such as peaches and cherries (*Prunus*)

stone fruit

fleshy drupe with a hard endocarp

**strap**

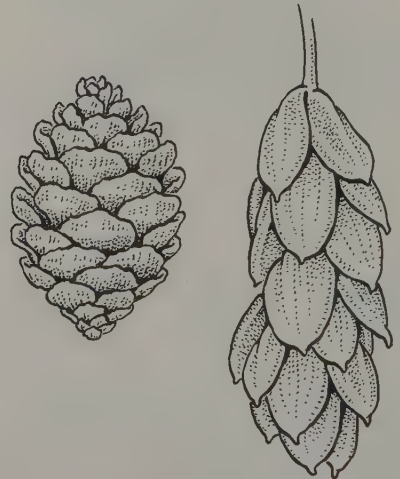
long, narrow, fused corolla (ligule) of ray flowers in the sunflower family (*Asteraceae*)

striate

striped with lines, ridges, or grooves

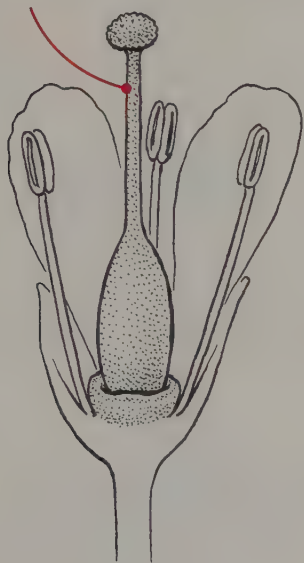
strobilus

(plural strobili) cone-shaped, cylindrical, or spherical structure with a central axis on which scales bearing spores, pollen, ovules, or seeds (i.e., sporophylls) are attached; the reproductive structure of gymnosperms, some lycophytes, and a few angiosperms



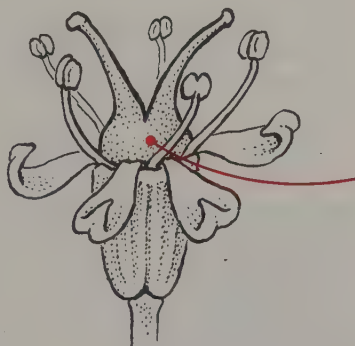
style

area of the pistil between the stigma and the ovary



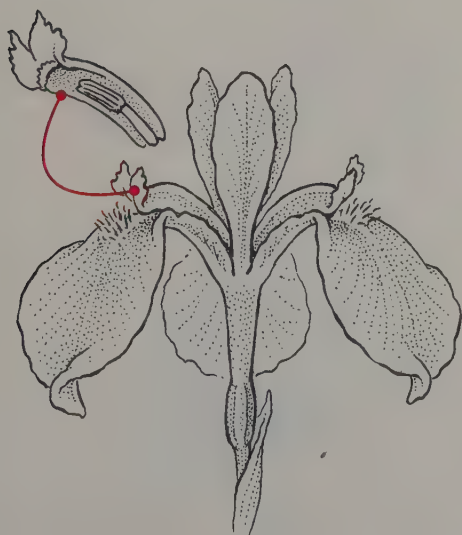
stylopodium

swollen disk-shaped area at the base of the style in the carrot family (Apiaceae)



style arm, style branch

branch of a style, each usually with its own stigma



sub-

prefix meaning 1. nearly so, almost, not quite;
2. below, under, beneath

subfamily

taxonomic rank above genus and below family; plant subfamily names end in “-oideae”

submersed, submerged

growing fully below the water's surface
ANTONYM **emersed**

subshrub

small woody plant with multiple main stems

subspecies

taxonomic rank below species; individuals or populations usually have natural ranges and forms that differ from what is typical for the species but that do not warrant recognition as a distinct species; see also **variety**

subtend

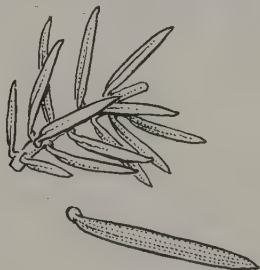
occurring under another structure or organ; e.g., the epicalyx on a *Hibiscus* flower

subterranean

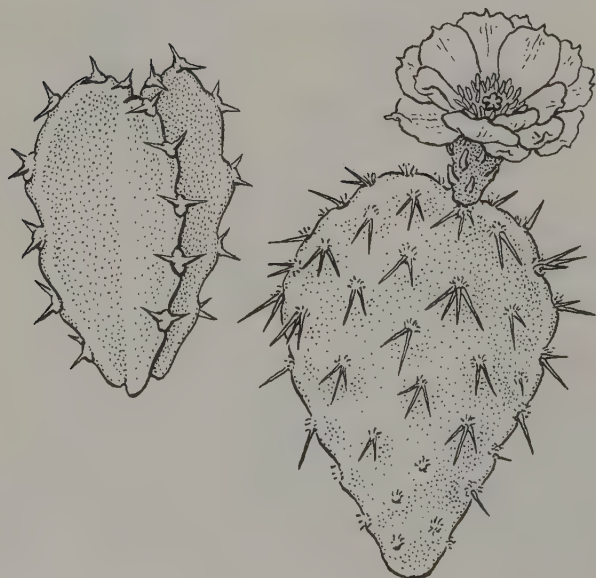
below ground

subulate

narrowly trowel-shaped or broadly needle-shaped

**succulent**

1. fleshy, water-storing; 2. plant that has fleshy, water-storing leaves and/or stems, e.g., jade plant (*Crassula ovata*), cacti (Cactaceae), spurges (Euphorbiaceae)

**sucker**

shoot growing from the base of a plant, usually applied to those emerging from below ground

suffrutex

subshrub, particularly one that is woody at the base and herbaceous above

summer annual

plant that grows from seed, flowers, produces seeds, and dies in the period from spring to early fall; see also **winter annual**

summer-bearing

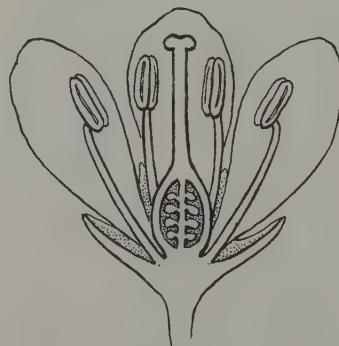
a fruiting shrub with floricanes that produce fruit midway through their second year of growth; e.g., some raspberries and blackberries (*Rubus*); see also **fall-bearing**

super-

prefix meaning above something else, or exceeding normal

superior ovary

gynoecium that is attached above the points of attachment of the outer three floral whorls (calyx, corolla, androecium)

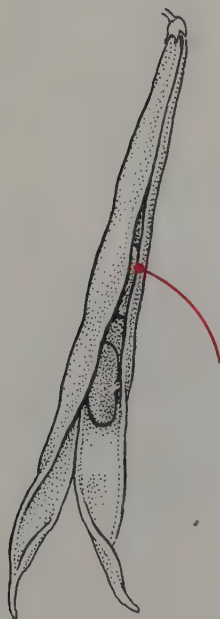


surculose

having or producing basal shoots or suckers

suture

line at which a fruit or anther splits open to dehisce

**syconium**

(plural syconia) enclosed inflorescence and multiple infructescence of figs (*Ficus*), consisting of an expanded receptacle folded in on itself and forming a chamber open only via an apical pore, flowers and resulting fused fruits are inside

**sym-**

prefix meaning fused

symbiosis

a relationship in which two organisms live fused together or in very close proximity, usually beneficial to both (mutualistic)

sympatric

occurring in the same area, as with two species whose distributions overlap

ANTONYM **allopatric**

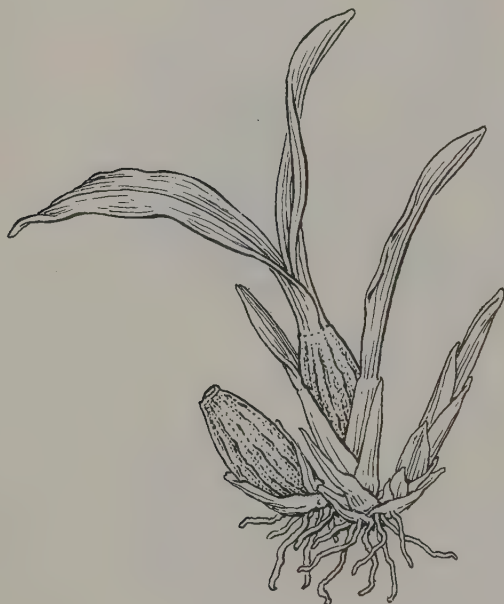
sympetalous

having a corolla that is at least partially fused

SYNONYM **gamopetalous**

sympodial

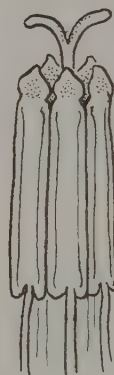
having a main axis made up of a series of terminating branches, each followed by an axillary branch that continues the outward growth of the axis; usually used to describe the growth of inflorescences but also to describe vegetative growth, such as in some orchids (Orchidaceae); see also **monopodial**

**syn-**

prefix meaning fused

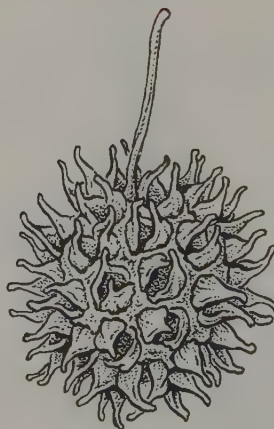
synandrous

having anthers that are fused together, as in flowers of the sunflower family (Asteraceae)

**syncarp**

fruit derived from an entire inflorescence, may be fleshy or dry; e.g., sweetgum (*Liquidambar styraciflua*)

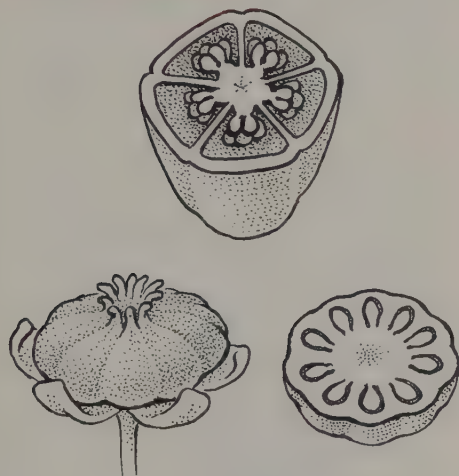
SYNONYM **multiple infructescence**



syncarpous

gynoecium consisting of two to many fused carpels (a compound pistil)

ANTONYM **apocarpous**



synsepalous

having a calyx that is at least partially fused

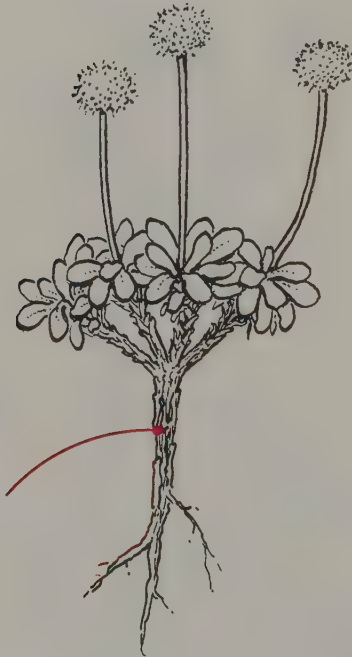
SYNONYM **gamosepalous**



T

taproot

root system in which there is a primary root of much greater diameter than the lateral roots



tassel

the apical, male inflorescence in corn (*Zea mays*)

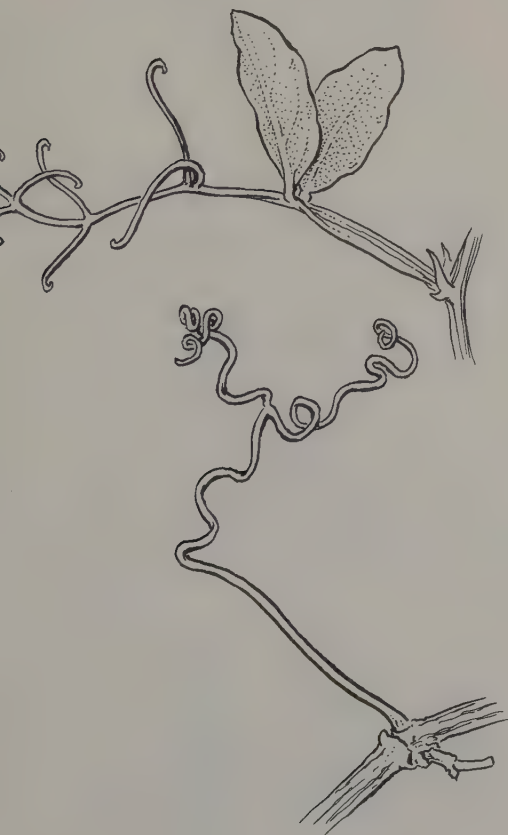


taxon

(plural taxa) a member of any taxonomic rank, such as a subspecies, species, genus, family, or order; useful in referring generically to a number of entities within a certain rank, e.g., the number of taxa in a genus would include species as well as subspecies and varieties

tendrils

twining modified whole or partial stem, leaf, or leaflet that helps a plant attach to neighboring plants or other supports as it climbs



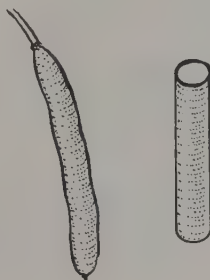
tepals

individual component of a perianth when the sepals and petals are petaloid; e.g., daffodils (*Narcissus*), daylilies (*Heimerocallis*)



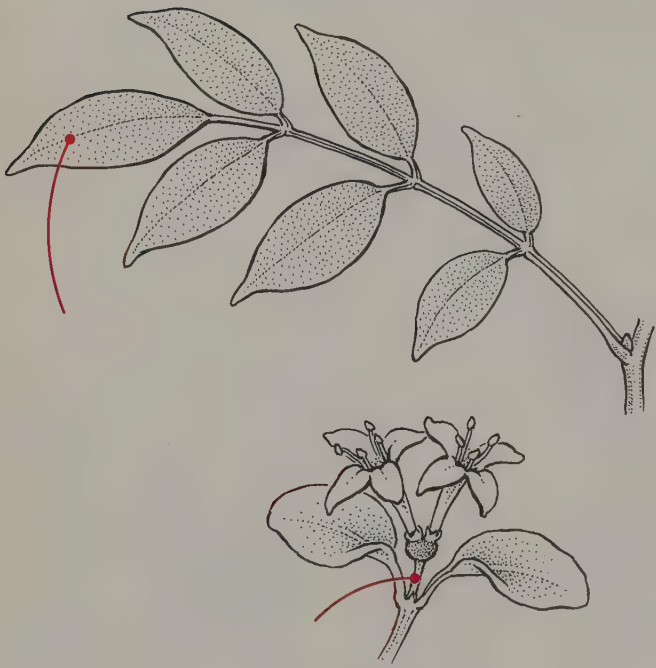
terete

circular in cross section



terminal

at the apex or tip, as of leaflets or inflorescence



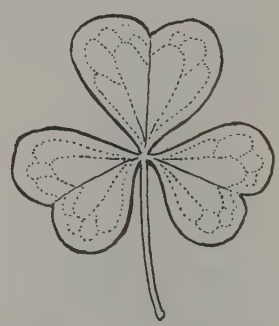
terminal bud

bud located at the tip of a stem, responsible for the elongating growth of the stem in most woody plants



ternate

divided in three; e.g., trifoliate leaf



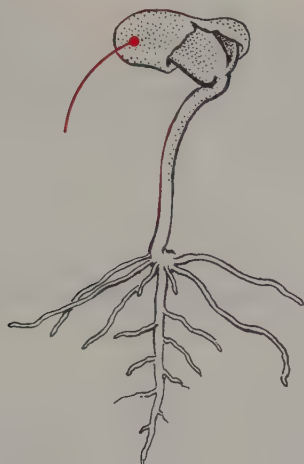
terrestrial

growing in the ground; living in and dependent upon land, not a body of water

testa

layer of tissue covering a seed, derived from the integuments surrounding the ovule

SYNONYM **seed coat**

**tetramerous**

having flower parts in multiples of four

**tetraploid**

having four sets of chromosomes ($4n$); see also **diploid**, **haploid**, **polyploid**

thallus

(plural thalli) main body of a plant that is not differentiated into stems, roots, and leaves

tetra-

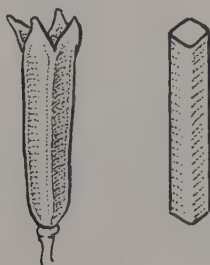
prefix meaning four

tetradynamous

having six stamens, four of which are long and two short, characteristic of the mustard family (Brassicaceae)

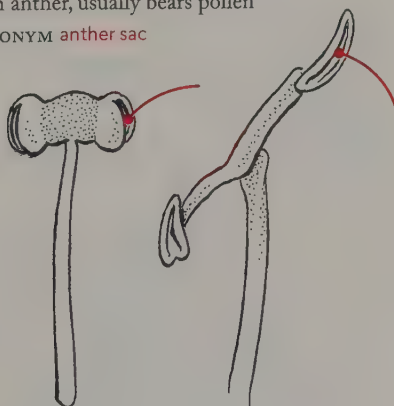
tetragonal, tetragonal

having four angles, like the young stems of most members of the mint family (Lamiaceae)

**theca**

(plural thecae) one of two chambers inside of each anther, usually bears pollen

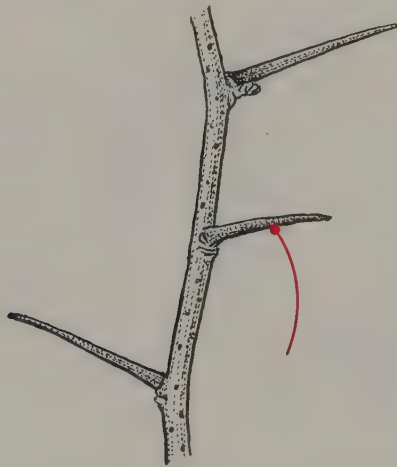
SYNONYM **anther sac**

**thigmotropism**

growth or change in orientation in response to touch

thorn

sharp, pointed modified stem

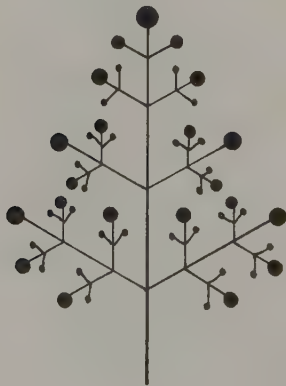


throat

in a fused corolla, the portion of the inside of the corolla that is seen when looking down into the flower

thyse

branched inflorescence with primary branches borne along an elongate axis (racemose) and secondary branches cymose



tiller

vertical shoot growing from the base or roots of a tree or shrub (i.e., a sucker)

tillering

propagation technique that harvests plant's basal vertical shoots (tillers) to cultivate as separate plants; the new plants are clones of the parent plant

tissue

cluster of like cells that together have a function

tissue culture

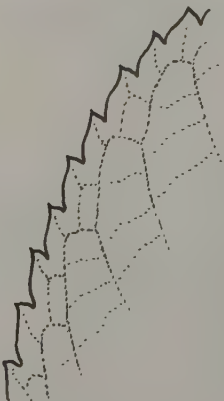
propagation technique that uses a small piece cut from the parent plant to grow a new adult plant on growth medium in a sterile environment; the new plant is a clone of the parent plant

tomentose

covered in short woolly hairs

tooth

serration or dentation along a margin



top

in horticulture, to prune away the upper portion of a plant

torus

in flowers, tissue to which all the floral whorls are attached

SYNONYM *receptacle*

trailing

having a horizontal stem creeping along the ground but not rooted to it

translator, translator arm

narrow connector between the two pollen clusters (pollinia) from different anthers in milkweeds (*Asclepias*)

**transplant**

to move from one location to another

transverse

perpendicular to the main axis

SYNONYM *latitudinal*

tree

woody plant, generally with one trunk and taller than mature shrubs

treelet

small tree

tri-

prefix meaning three

tribe

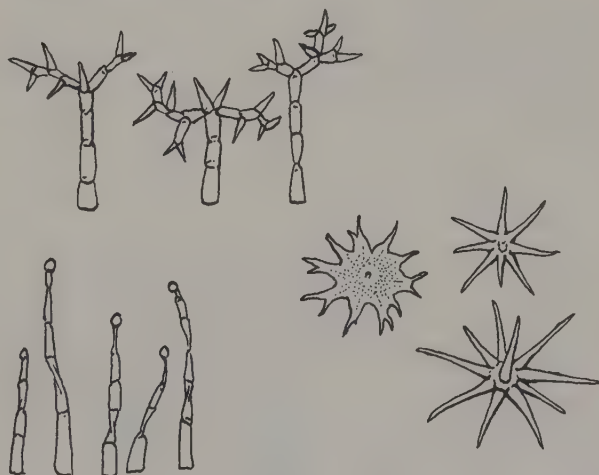
taxonomic rank above genus and below family; plant tribe names end in "-ae"

tricarpelate

having three carpels

trichome

hair or similar outgrowth of the epidermis consisting of one or more elongated cells

**trifid**

deeply divided into three lobes

trifoliolate

having three leaves, often also used to refer to leaves with three leaflets (trifoliolate)

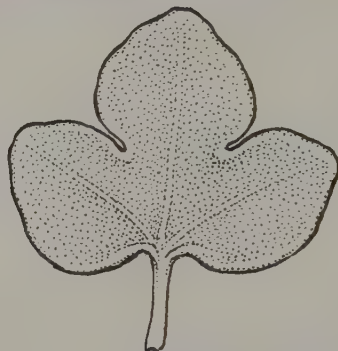
trifoliolate

having three leaflets



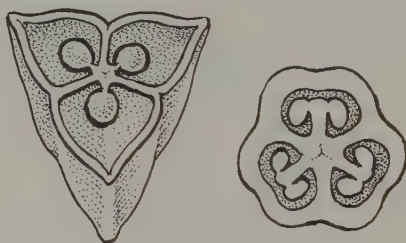
trilobate

having three lobes



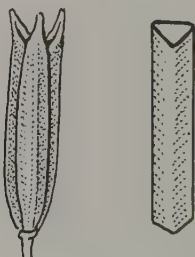
trilocular

having three locules (chambers) or cavities



trigonus

triangular in cross section, as with a stem with three edges



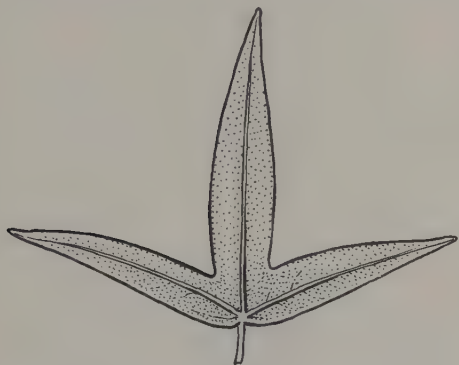
trimerous

having flower parts in multiples of three



tripartite

divided into three parts

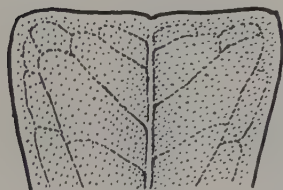


tropism

growth or change in orientation in response to a resource or stimulus

truncate

straight, as if the apex or base has been cut off with a straight edge (squared)



trunk

main stem or axis of a tree, between the roots and where branches begin to form the crown

SYNONYM **bole**

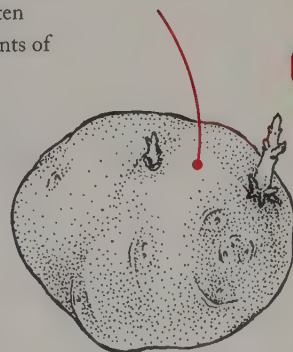
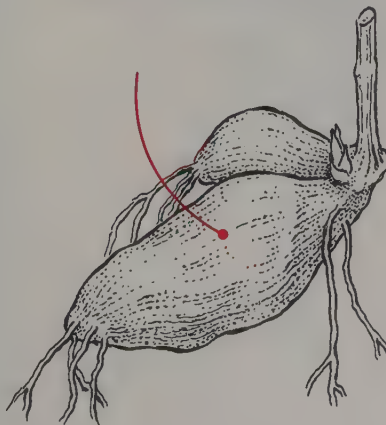


truss

in horticulture, a cluster of flowers, an inflorescence

tuber

a thickened rhizome (underground stem), with nodes and internodes, that stores energy, usually in the form of starch; term is often used to refer to the individual components of tuberous roots, which are true roots

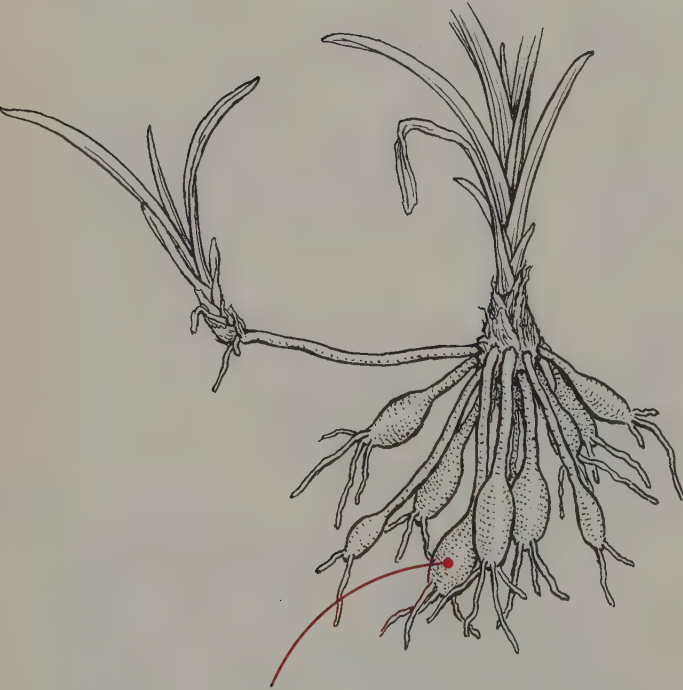


tubercle

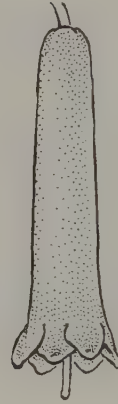
small protuberance that resembles a tuber; e.g., the achene of sedges (Cyperaceae)

**tuberous roots**

swollen roots in which energy is stored, usually in the form of starch

**tubular**

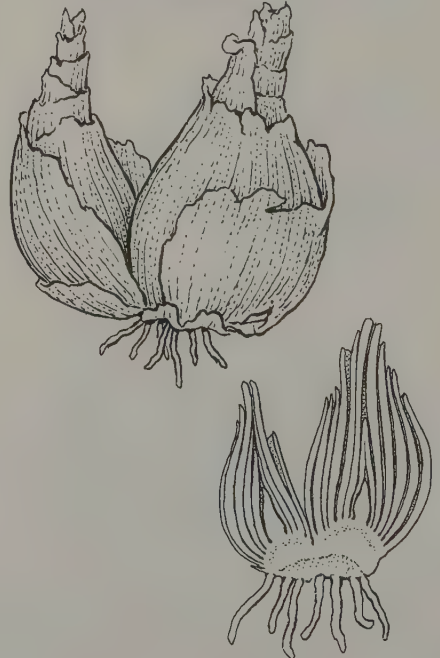
cylindrical, resembling a tube

**tufted**

occurring in dense little clusters

tunicate

having multiple, concentric layers, as with the leaves of onion (*Allium*) bulbs



turbinate

shaped like a spinning top, as with the flower buds of dogwood (*Cornus florida*)

turgid

swollen, distended, often due to water absorption

turion

a bud in aquatic plants that acts as a vegetative propagule; turions sink to the bottom of water, surviving harsh winters and drought, and rise again when conditions are favorable for growth

tussock

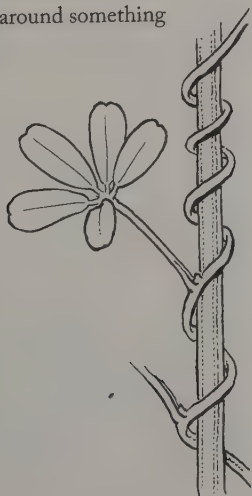
clump of grass or grass-like plants that is larger than other similar plants around them, as with a tuft of grass that has grown taller than the rest of a lawn

twig

small, somewhat delicate woody stem

twining

coiling or turning around something else for support

**two-ranked**

occurring in a single plane along a central axis, as with leaves on a stem, making the entire structure appear flat when viewed down the axis from the tip to the bottom or vice versa

SYNONYM *distichous*



U

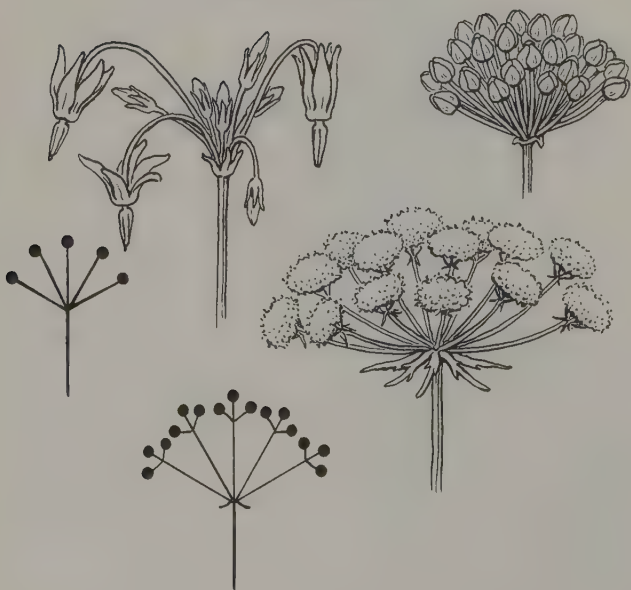
ubiquitous

distributed worldwide, or nearly so

SYNONYM **cosmopolitan**

umbel

inflorescence with flowers or branches borne from a common point, presenting flowers on a rounded or flat plane at the top, may be simple (unbranched) or compound (branched); illustrated here are shootingstar (*Dodecatheon*) and onion (*Allium*), both simple, and Queen Anne's lace (*Daucus carota*), compound



umbo

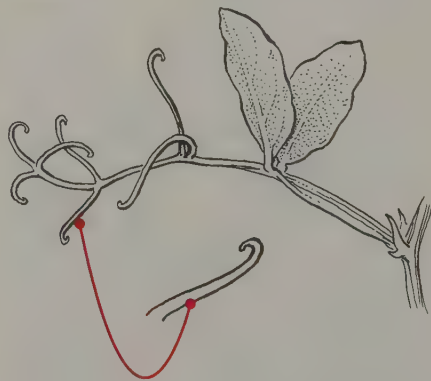
projection on the outside surface of female cone scales (megasporophylls)

unarmed

without prickles, spines, or thorns

uncinate

hooked at the tip, as with some tendrils and leaves



undulate

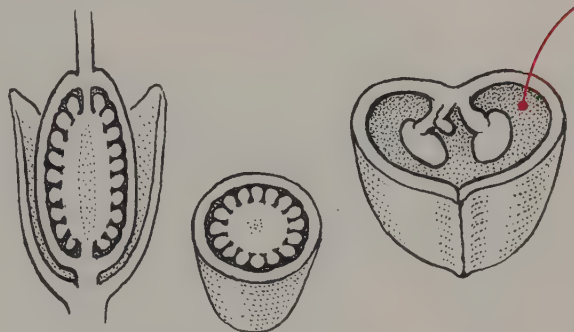
margin or surface shallowly wavy, more often applied to surfaces

SYNONYM *repand*



unilocular

having only one locule (chamber) or cavity



213

unguiculate

clawed

uni-

prefix meaning one

unicarpellate, unicarpellous

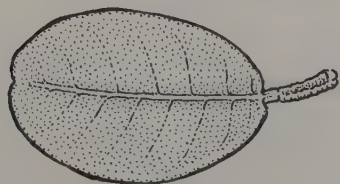
having only one carpel

unifoliate

having only one leaf

unifoliolate

having compound leaves that are reduced to one leaflet and thus appear to be simple



uniseriate

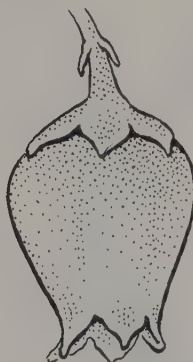
having parts arranged in one row

unisexual

having only male or only female functional reproductive parts

urceolate

shaped like an urn



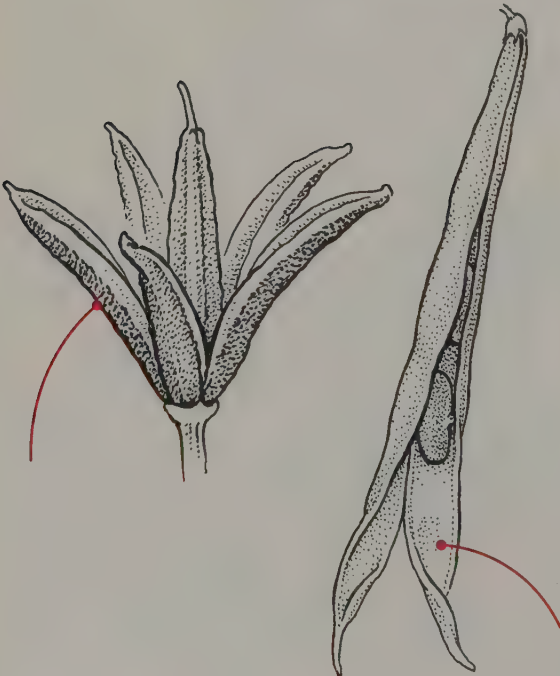


valvate

1. having petals or sepals that line up margin to margin in bud, not overlapping; 2. opening by valves, as with some capsules and anthers

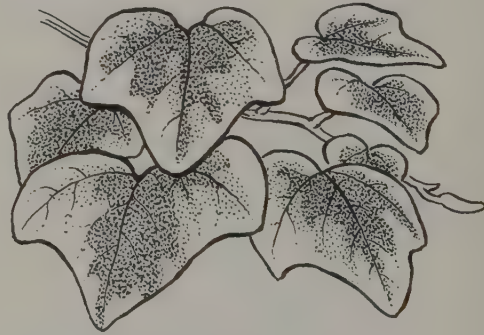
valve

one of the separating segments in a dehiscent fruit



variegated

having more than one color in organs or tissues that are normally a solid color (usually green), most often applied to leaves or whole plants such as coleus (*Solenostemon*)

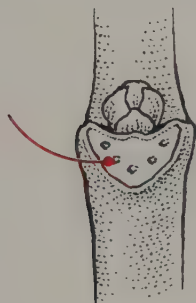


variety

taxonomic rank below species; individuals or populations usually have a certain stable but minor characteristic, such as flower color, that differs slightly from what is typical for the species; see also **subspecies**

vascular bundle

tight columns of conductive tissue, traces of these bundles are visible in leaf scars left when leaves fall from woody plants



vascular tissue

cells that together transport water and nutrients throughout the plant bodies of seed plants, ferns, and lycophytes

vegetative

non-reproductive parts of plants; e.g., stems, leaves, roots

vein

vascular tissue in leaves or leaf-like structures such as bracts, petals, sepals, and stipules, may be branching or not

SYNONYM *nerve*

velamin

the spongy, water-absorbing outer epidermal layer of epiphytic orchid roots

velutinous

covered in short velvety hairs

venation

the arrangement of vascular tissue in leaves or leaf-like structures such as petals and sepals

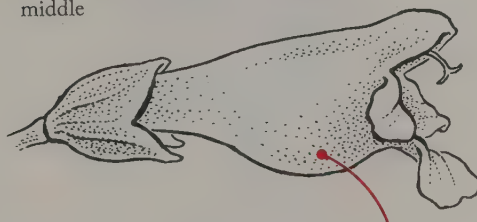
ventral

pertaining to the front, surface facing toward the axis

ANTONYM *dorsal*

ventricose

inflated on only one side, usually in the middle



vernal

of the spring, as with plants that bloom in the spring

vernation

arrangement of leaves in bud; see also

aestivation

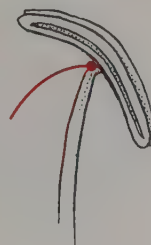
SYNONYM *ptyxis*

versatile

attached at the middle, as with filaments attached to the middle of anthers; see also

basifixed, dorsifixed

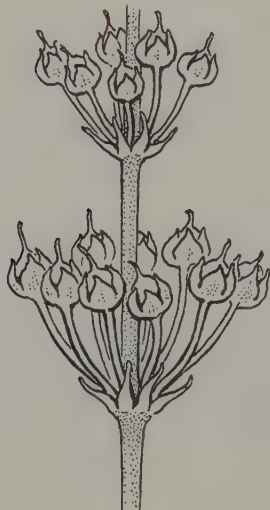
SYNONYM *medifixed*



verticil

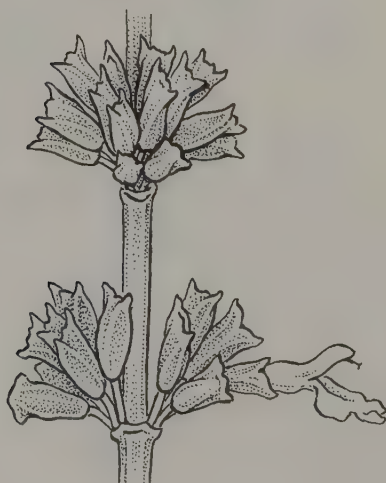
one of several layers around a central axis, as with parts of a flower; e.g., corolla, calyx, androecium, gynoecium

SYNONYM **whorl**



verticillaster

inflorescence of opposite cymes that occur in a series of pairs along the terminal portion of stems, creating a false whorl, as in the mint family (Lamiaceae)



verticillate

1. occurring more than two per node, as with multiple leaves circling a stem; 2. arranged in layers around a central axis

SYNONYM **whorled**

vestigial

underdeveloped, reduced in size and not functional; e.g., non-functional, reduced stamen (staminode) in a flower

SYNONYM **obsolete**, **rudimentary**

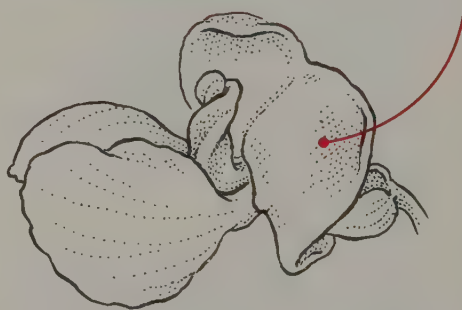
vestiture

the collective covering of and projections from a plant's epidermis

vexillum

flower petal typical of papilionoid legumes in the bean family (Fabaceae), usually the upper and largest petal; e.g., sweet peas (*Lathyrus*), lupines (*Lupinus*)

SYNONYM **banner**, **standard**



viable

capable of life or reproduction, as with a seed that germinates and grows into a seedling

villous

covered in soft, long hairs that remain untangled

vine

herbaceous climbing plant

viscidium

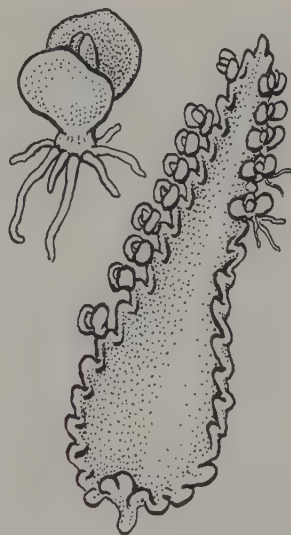
sticky structure attached to an orchid pollinium via stipes, the viscidium facilitates pollen transfer by sticking to pollinators

**vitreous**

glass-like in appearance, transparent

viviparous

offspring developing while still attached to the parent plant, as with seeds germinating in fruits still attached to the parent plant (e.g., mangroves, *Avicennia*, *Rhizophora*), or buds that forms plantlets while still attached to the parent plant (often on leaves, e.g., waterlilies, *Nymphaea*)



W

weed

a plant that grows where it is not wanted and is difficult to eradicate, usually applied to plants in cultivated or otherwise disturbed places

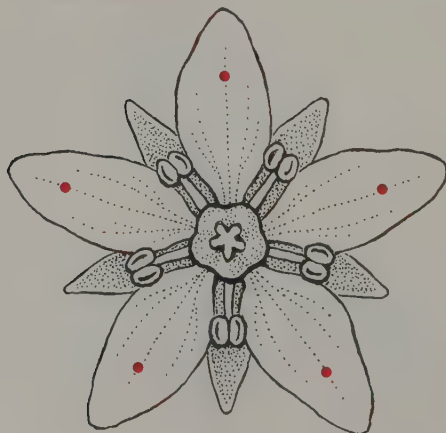
weeping

having branches that hang downward, as with some willows (*Salix*)

whorl

one of several layers around a central axis, as with parts of a flower; e.g., corolla, calyx, androecium, gynoecium

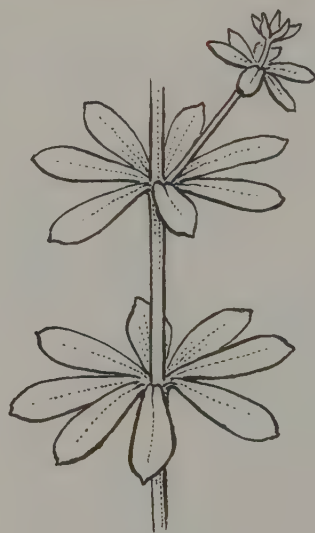
SYNONYM **verticil**



whorled

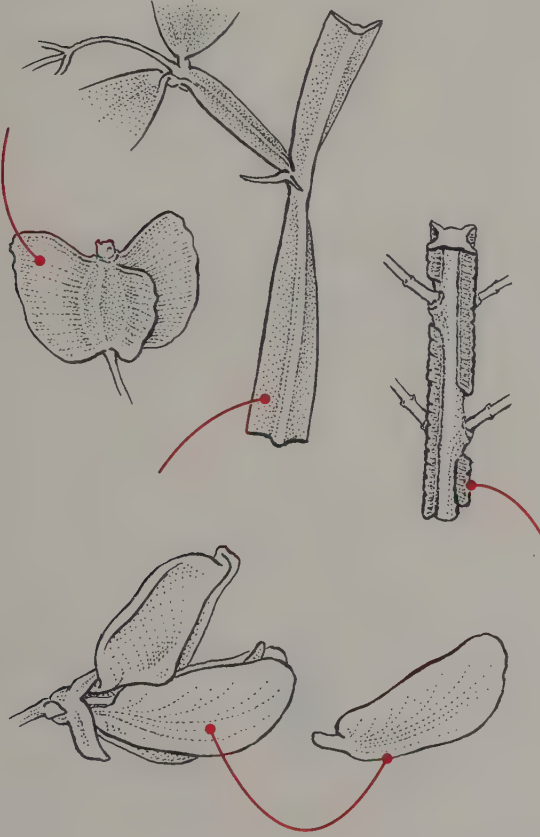
1. occurring more than two per node, as with multiple leaves circling a stem; 2. arranged in layers around a central axis

SYNONYM **verticillate**



wing

1. flat flap or extension of tissue emerging from the margin of a structure, such as a leaf rachis or a fruit; 2. lateral petal of a pea flower (Fabaceae subfamily Papilionoideae)



winter bud

dormant plant shoot covered in scales that protect it from environmental conditions such as frost



winter annual

plant that grows from seed, flowers, produces seeds, and dies in the period from early fall to late spring; see also **summer annual**



×

in nomenclature, indicates hybrid origin, whether written before the genus, indicating an intergeneric cross (e.g., *×Heucherella*), or between the genus and the specific epithet, indicating an interspecific cross (e.g., *Epimedium ×versicolor*)

xanthophyll

yellow pigments primarily in plant leaves, oil-soluble

xeric

dry, pertains to geographic areas such as deserts

xero-

prefix meaning dry

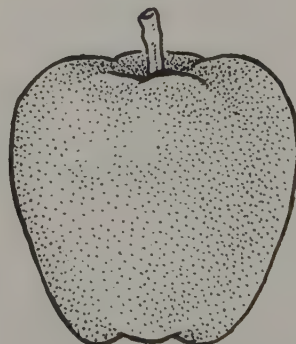
xerophyte

plant adapted to growing with very low water availability; see also *hydrophyte*, *mesophyte*

X.S.

cross section

ANTONYM *l.s.*, *longitudinal section*



Z

zoophilous

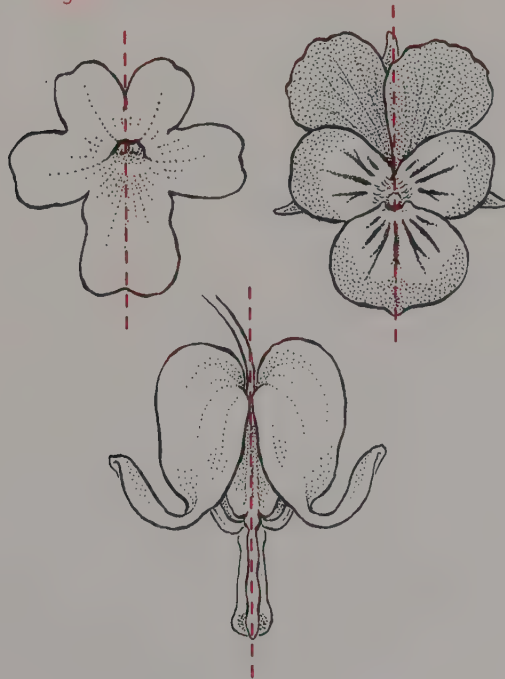
pollinated by animals, especially those other than insects

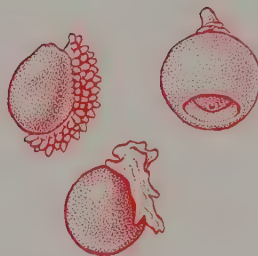
zygomorphic

having a single plane of symmetry such that only one line drawn through the middle produces two mirror-image halves

SYNONYM bilaterally symmetrical; irregular

ANTONYM actinomorphic, radially symmetrical, regular





Recommended Reading

Bebbington, Anne L. D. 2015. *Understanding the Flowering Plants: A Practical Guide for Botanical Illustrators*. The Crowood Press, Marlborough, U.K.

Beentje, Henk. 2010. *The Kew Plant Glossary: An Illustrated Dictionary of Plant Terms*. Royal Botanic Gardens, Kew, London, U.K.

Bell, Adrian D. 2008. *Plant Form: An Illustrated Guide to Flowering Plant Morphology*. Timber Press, Portland, Ore.

Castner, James L. 2004. *Photographic Atlas of Botany and Guide to Plant Identification*. Feline Press, Gainesville, Fla.

Ellis, Beth, Douglas C. Daly, Leo J. Hickey, John D. Mitchell, Kirk R. Johnson, Peter Wilf, and Scott L. Wing. 2009. *Manual of Leaf Architecture*. Comstock Publishing Associates, an imprint of Cornell University Press, Ithaca, N.Y.

Gough, Robert. E. 1993. *Glossary of Vital Terms for the Home Gardener*. Food Products Press, an imprint of The Haworth Press, Inc., Binghamton, N.Y.

Harris, James G., and Melinda Woolf Harris. 2001. *Plant Identification Terminology: An Illustrated Glossary*, 2nd ed. Spring Lake Publishing, Spring Lake, Utah.

Hickey, Michael, and Clive King. 2001. *The Cambridge Illustrated Glossary of Botanical Terms*. Cambridge University Press, Cambridge, U.K.

Horticultural Research Institute. 1971. *A Technical Glossary of Horticultural and Landscape Terminology*. Pennsylvania State University, Department of Landscape Architecture, University Park, Pa.

Mabberley, David J. 2008. *Mabberley's Plant-book: A Portable Dictionary of Plants, Their Classifications, and Uses*, 3rd ed. Cambridge University Press, Cambridge, U.K.

Swartz, Delbert. 1971. *Collegiate Dictionary of Botany*. The Ronald Press Company, New York, N.Y.

Zomlefer, Wendy B. 1994. *Guide to Flowering Plant Families*. The University of North Carolina Press, Chapel Hill.



About the Authors

Susan K. Pell is the Science and Public Programs Manager at the United States Botanic Garden, where she gets to show people the awesomeness of plants every day. She was formerly Director of Science at the Brooklyn Botanic Garden, where she studied the evolutionary relationships of the cashew family. She holds a Ph.D. in plant biology and teaches courses in genetics, angiosperm morphology, and systematics. Susan lives in Washington, D.C., with her wife and daughter.



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Bobbi Angell creates richly detailed pen and ink drawings for botanists at the New York Botanical Garden and other institutions, and for many years illustrated the *New York Times* Garden Q&A column. A gardener and printmaker as well as an illustrator, she lives in southern Vermont.



MALLORY LAKE

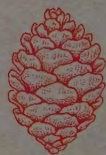
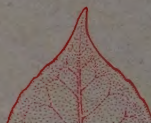
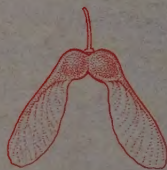


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